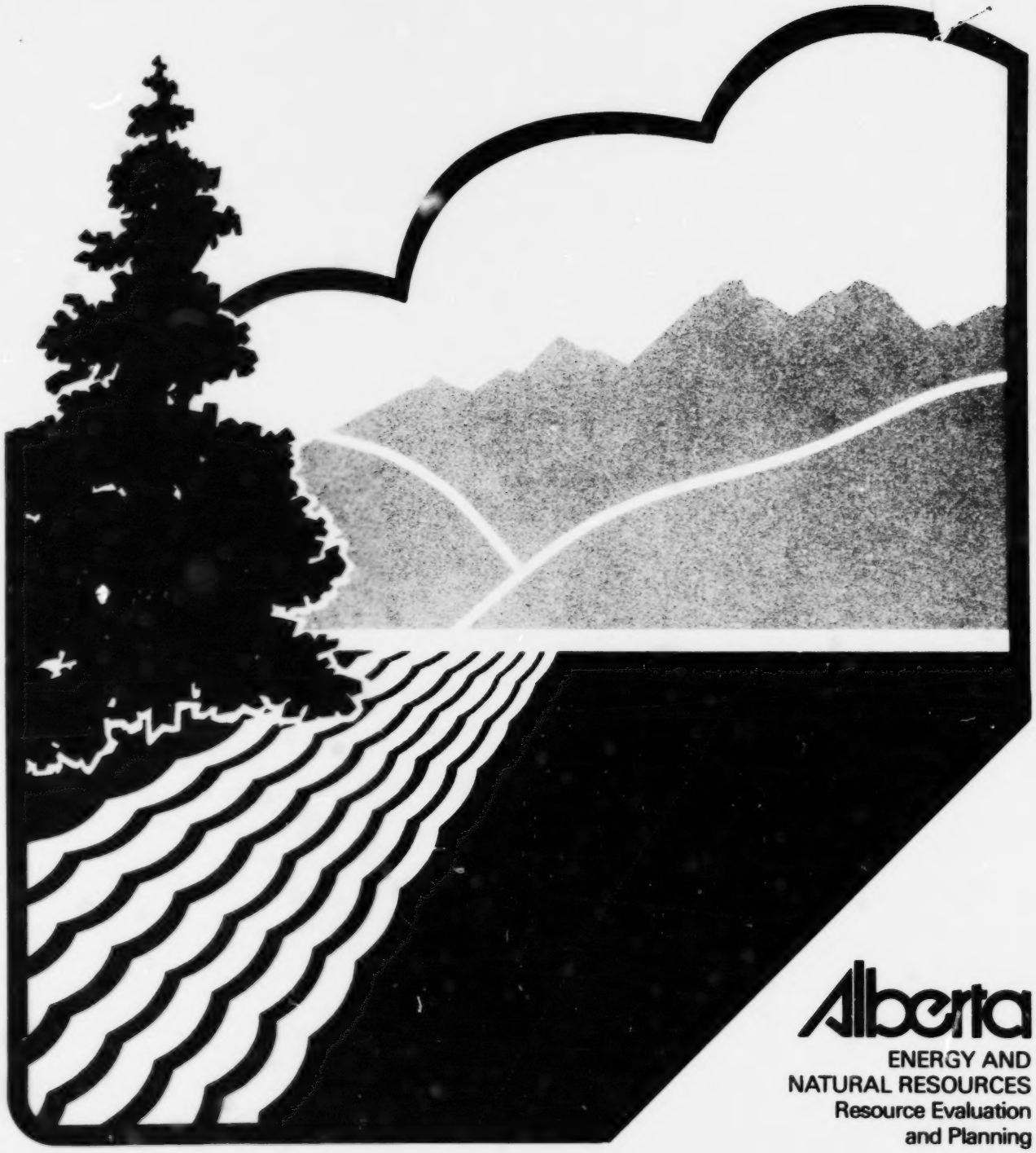
Integrated Resource Inventory

Physical Land and Forage Classification
Special Lakeland Area, Vol. 1



Alberta

ENERGY AND
NATURAL RESOURCES
Resource Evaluation
and Planning

AN INTEGRATED RESOURCE INVENTORY

OF

THE SPECIAL LAKELAND AREA

PHYSICAL LAND AND FORAGE CLASSIFICATIONS

VOLUME I

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ABSTRACT

The Physical Land Classification and Forage Classification of the Special Lakeland area provides an inventory of the soils, vegetation, landforms, and surficial deposits of the area and identifies their characteristics and interrelationships. This area derives its complex nature from the interaction of various kinds of soil and vegetation. Fire has been a major influence on the vegetation in the area. Although the dominant parent material in the area is glacial till, variable thicknesses of sandy glaciofluvial sediment is generally found as a veneer on the till. Changes in vegetation often occur with significant change in the parent material and the surface expression of the landform.

The study area is divided into seven geomorphic systems which represent the component parts of the area with recurring patterns of landforms as defined and distinguished by mode of origin (genesis), composition, surface expression and drainage pattern.

The area was glaciated by the Keewatin ice sheet during the Pleistocene. Parent geological material in most areas consists of glacial deposits. In local areas, organic and recent flucial materials are also found.

The predominant soils in the Special Lakeland area are Orthic Gray Luvisols, Brunisolic Gray Luvisols and Eluviated Eutric Brunisols.

Poorly drained soils are Orthic or Luvic Gleysols. Organic soils, usually Mesisols and Humisols, occur in very poorly drained areas where the water table is at the surface throughout the year.

The Special Lakeland area lies within the dry subregion of the Boreal Mixedwood Ecoregion and is dominated by aspen-poplar tree cover. There are 14 forage types identified for the area. These have been separated and described on the basis of dominant tree species, namely pine, aspen, white spruce, balsam poplar, black spruce, tamarack, or brush. The types are compared and discussed in terms of succession.

There are seven integrated systems defined by the boundaries of the seven geomorphic systems. These integrated systems outline the relationships between soils, vegetation and topography.

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PREFACE

The Physical Land and Forage Classification of the Spec[illegible]l Lakeland area was initiated in the summer of 1982 at the request of Alberta Energy and Natural Resources Public Lands division with the objective of characterizing the area in terms of landforms, soils and vegetation. This study has attempted to be as comprehensive as possible within the terms of reference and the time available. The results of the study are contained in this report. These are presented in the form of a written text and maps which form an integral unit and for best results should be used together.

The report provides a general description of the area, a discussion of the methodology employed in the inventory, and background information on physical characteristics, soils and vegetation of the area. There are three sections in this report: a Physical Land Classification section, a Forage Classification section and an Integrated Systems section.

The Physical Land Classification section describes the geomorphic systems in terms of genetic material, landform, soils, and vegetation.

The Forage Classification section of the report outlines the types of vegetation communities, their species composition and cover, and the productivity of each forage type.

The Integrated Systems section is designed to establish the relationships between soils and vegetation. These relationships, once

established, should facilitate land use planning and assist in defining limitations within the systems.

Two maps at a scale of 1:15 000 accompany this report. The physical land classification map shows the location and extent of the individual geomorphic units as well as geomorphic systems, and the forage cover map indicates the forage types.

The second volume of this report includes two appendices. The first is a detailed description of the soils at selected sites. The second describes forage types and provides environmental data for the forage plots.

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1. INTRODUCTION

The purpose of this study is to provide an integrated resource inventory based on physical land and vegetation information. To manage land it is desirable to understand the component parts. The components incorporated in this inventory represent relatively permanent features of the landscape: soil, landform, and vegetation. Each component has a classification of its own which can be used individually. In this inventory, soils, landform, and vegetation were used in combination to provide a framework for environmental resource management.

1.1 Location and Extent

The study area covers about 16 300 hectares (63 square miles) in east-central Alberta. The area lies between 54° 31' 53" and 54° 35' 15" north latitude and between 111° 03' 48" and 111° 28' 00" west longitude and includes all or parts of township 64, ranges 8, 9, and 10, west of the fourth meridian (Figure 1).

1.2 Climate

The general climate of the Special Lakeland area is the continental type characterized by warm summers and cold winters. The only long term weather station is at Iron River (approximately 20 km east of the study area on Hwy. 55). Pertinent data from this station is summarized in Table 1. The mean annual temperature is about 1°C and the mean July temperature is 17°C. The length of the growing season (average

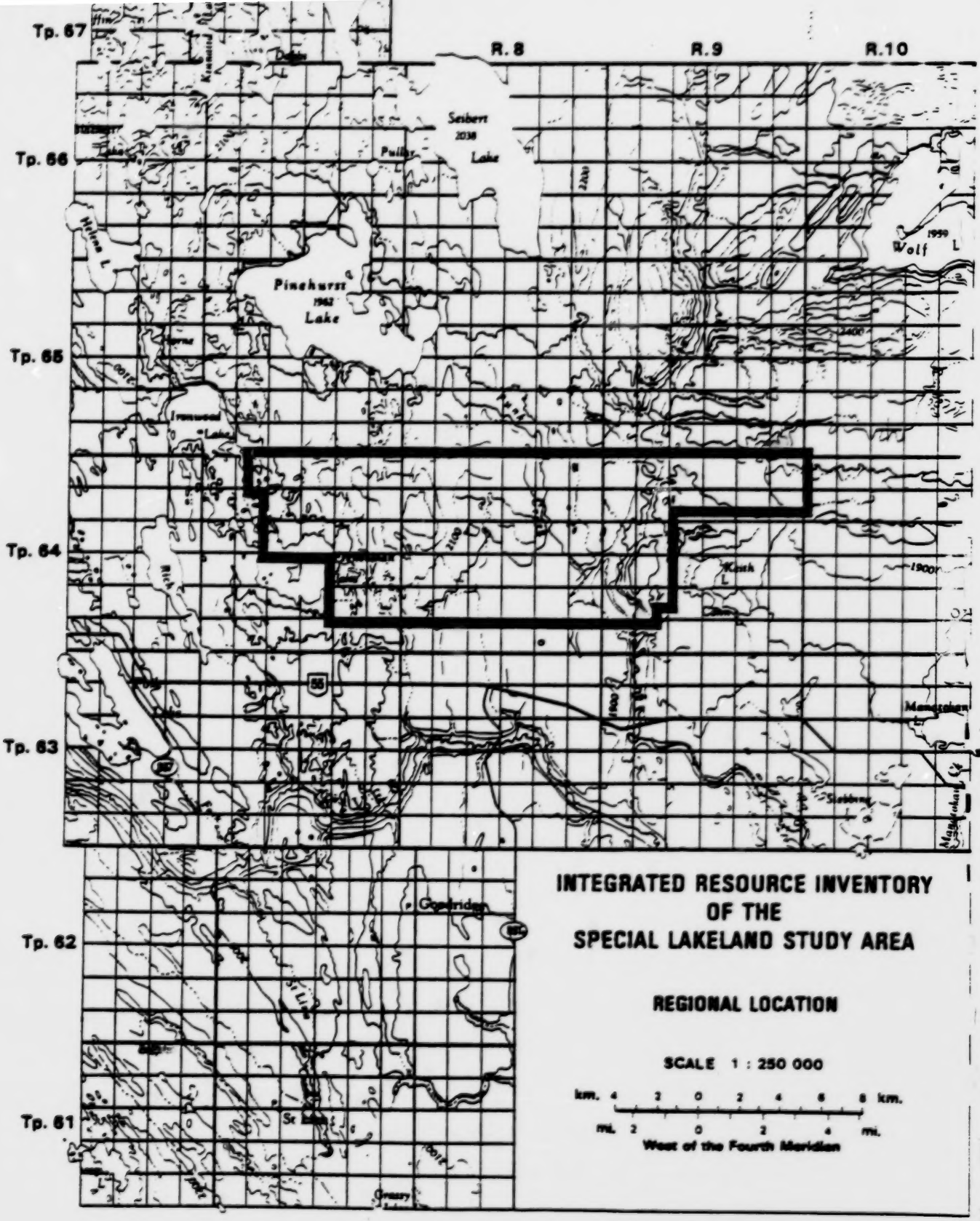


Fig. 1: REGIONAL LOCATION

Table 1

MONTHLY AND ANNUAL TEMPERATURE AND PRECIPITATION AT IRON RIVER, ALBERTA

	Daily Temp (C^{o})			Precipitation	
	MAX.	MIN.	MEAN	RAIN (mm)	SNOW (cm)
January	-13.6	-24.8	-19.2	0.1	18.7
February	- 7.1	-20.1	-13.7	0.1	13.6
March	- 1.9	-15.4	- 8.7	0.7	17.8
April	8.7	- 4.1	2.3	5.4	10.8
May	17.5	2.9	10.3	33.9	2.1
June	20.9	7.1	14.0	69.5	0.0
July	23.2	9.9	16.6	79.0	0.0
August	21.9	8.4	15.2	70.2	0.0
September	15.8	3.1	9.5	38.6	2.8
October	10.4	- 2.0	4.2	7.7	7.9
November	- 1.6	-11.1	- 6.4	1.5	17.8
December	- 9.1	-19.4	-14.3	0.1	18.0
YEAR	7.1	- 5.5	0.8	306.8	109.5

daily temperature above 5.5°C) is about 160 days with dates from April 30 to October 6. The frost-free period for the area is about 90 days. The annual precipitation is 420 mm with 290 mm coming in the May to September period.

1.3 Vegetation

The Special Lakeland area lies within the dry subregion of the Boreal Mixedwood Ecoregion which is characterized by an aspen-poplar tree cover with an understory of reed grass, hairy wild rye, cream-coloured vetchling, wild vetch, prickly rose, dogwood, willow and Saskatoon-berry (Strong and Leggat, 1981). The climax species on mesic sites have been established as white spruce and balsam fir with a feathermoss understory. Fire, which has been prevalent in the area, and logging activity have played a major role in preventing the attainment of a climax forest. Jack pine is commonly found in sandy areas with an ericaceous shrub/lichen understory. Black spruce, in association with Labrador tea, bog cranberry and sphagnum moss is dominant where drainage and aeration are poor and nutrients are lacking.

The study area is considered to be within a transitional zone between the Aspen Parkland region in the south and the Mixed Coniferous-Deciduous region in the north and west.

1.4 Bedrock Geology

The bedrock in the general area is composed of slightly consolidated to unconsolidated bentomitic shale and sandstone of the Upper and

Lower Cretaceous age (Green, 1972). The LaBiche Formation underlies the study area and is composed of marine, dark gray shale and silty shale; ironstone partings and concretions. The bedrock in the area dips gently to the southwest. The rocks are not exposed in the study area due to the thick overburden of glacial deposits.

1.5 Soils

Soils of the area are dominantly well to moderately well drained Orthic Gray Luvisols and Brunisolic Gray Luvisols in combination with significant amounts of Eluviated Eutric Brunisols, Organic and Gleysolic soils.

Most of the soils in the area possess leached, acidic, Ae horizons overlying relatively strongly developed Bt horizons. These indicate soil development under forest vegetation and place the soils into the Luvisolic Order. On sandy deposits, the clay content of the original material is low. Therefore, well-developed Bt horizons are not usually found although Ae horizons are present. These soils are classified in the Brunisolic Order. Poorly drained mineral soils are under reducing conditions continuously or during some period of the year. They have distinct or prominent mottles of high chroma, and are classified in the Gleysolic Order. Organic soils are very poorly drained and have developed from organic deposits. The majority of them are saturated for most of the year.

2. PHYSICAL LAND CLASSIFICATION

The physical land classification of the Special Lakeland area provides data for the geology, geomorphology and patterns of relief of the area and identifies their attributes. Criteria selected for the classification are those which can be visibly identified on maps, air photos, or on the ground. These generally are the geomorphic processes responsible for shaping the landscapes within the study area. However, they also include landform patterns and soil development sequences.

2.1 Methodology

The Physical Land Classification Methodology (Land Classification Group, 1978) provides guidelines for the systematic delineation of land areas based on the principle of recognizing the geomorphic nature of the earth's surface along with an understanding of structure, genesis and process as reflected in landform, parent geologic material, soil and other ecosystems.

2.1.1 Interpretation

The physical land classification of the Special Lakeland area was based primarily on systematic aerial photo interpretation augmented by field data and existing information.

Initially, the detailed subdivision of the area was done by analysing aerial photography at a scale of 1:15 000. The results of the systematic aerial photo interpretation were then transferred to a map at

a scale of 1:15 000. Geomorphic units, areas of land on particular parent materials having fairly homogeneous soils, topography, drainage and landforms, were defined and fit into geomorphic systems. The final physical land classification map of the area is a composite of the information obtained from the aerial photographs, field work conducted in the area, and the data from previous studies.

2.1.2 Field Procedure

The aerial photo interpretation was verified and supplemented with field work conducted during July and August, 1982. Field plots were chosen to characterize individual geomorphic units, especially those not readily interpretable from aerial photography. At each inspection site, the parent geologic material, soils, landform, slope, and subsurface drainage were determined. All passable roads and trails were traversed by four-wheel drive truck. Much of the area is heavily forested and access is difficult, therefore the majority of the sites were examined through helicopter landings.

The soils in the area were classified according to the Canadian System of Soil Classification (1978). The soil subgroups established were based mainly on the kinds and degrees of development of soil horizons, the sequence of soil horizons and layers in soil profiles, and on lithologic differences in soil parent materials. Other soil properties measurable in the field, such as soil texture, color and thickness of horizons, soil structure and consistency, were recorded. Representative

samples of the various soils in the area were collected for laboratory study.

2.2 Physical Land Characteristics

The Special Lakeland area lies within the Eastern Alberta Plains Region. Elevation is only about 590 m in the east where the Sand River crosses the study area, but increases to about 720 m in the central part of the area. This change in elevation takes place over a distance of approximately 8 km. The hummocky moraine area in the western part of the area has an elevation of about 675 m and decreases to about 575 m along Frenchman Lake.

The area has generally subdued topography although there are a few long, moderate slopes that are dissected by few, small, intermittent streams. Many of the characteristic elements of a hummocky disintegration moraine, such as till knobs, ridges and kettles, are present in the western portion of the area.

2.2.1 Surficial Deposits and Landforms

The area was last glaciated by the Keewatin ice sheet in Pleistocene time. Materials carried by the glaciers were deposited on subglacial land surface. During deglaciation meltwater channels were formed which resulted in the deposition of glaciofluvial sediments. The Sand River, which drains the eastern part of the study area, flowed from north to south and formed a relatively straight channel. A second meltwater

channel system located west of the Sand River was created by the overland water flow draining south from Siebert and Pinehurst Lakes. These meltwater channels appear to have lost their carrying capacity and deposited sand over the area.

The principal surficial deposits found in the Special Lakeland area are till, glaciofluvial deposits, organic and recent fluvial materials.

Glacial till with hummocky surface expression is dominant in the western part of the study area. The landscape is characterized by an irregular knob and kettle topography with slopes ranging from three to 25 percent. Generally, there is no alignment of the knolls into ridges and no dominant trends are discernible. The well drained knolls are believed to have formed when major ice blocks were cut off from the retreating glacier and melted in situ, whereas the poorly drained depressions resulted from the melting of large blocks of ice buried in deposit. The area consists mainly of clay loam till which is relatively compact in places. There is usually a thin (five to 15 cm) layer of glaciofluvial sand or loamy sand overlying the till material. In some areas, especially along the streams, the thicknesses of the sandy layer may be as much as 50 cm.

Clay loam to clay till with inclined and undulating surface expressions occurs in the central part of the area. This area is characterized by long, uniform slopes with a three to 15 percent gradient. There

are few incised drainage channels which indicates the area is susceptible to gullying and mass wasting. A significant portion of the area is capped by a glaciofluvial loamy sand to sand veneer with an average thickness of 30 cm.

In the eastern portion of the study area, the parent geologic material is dominantly sandy loam to sandy clay loam till. The high percentage of sand in this till and the presence of water-deposited overlays suggest that the till may have been reworked and modified by the action of flowing water. A sandy glaciofluvial veneer with an average thickness of 30 cm mantles the area. The landscape is characterized by an undulating and inclined surface expression with slopes ranging from three to 15 percent. There are frequent depressions which have been infilled with organic deposits.

Glaciofluvial sediments with textures ranging from coarse sand to loamy sand extend on both sides of the Sand River and cover a major portion of the study area. The thickest deposits occur mainly west of the Sand River and in a small part of the area they have been modified by wind. The sand deposits become a thin veneer over morainal deposits in the central and eastern parts of the area. Here, the till is frequently exposed on ridges and strongly influences the landscape with its striated pattern. Thus, the glaciofluvial deposits are not confined to a sharply defined area like the hummocky moraine in the western part of the area but, rather, grade into several areas of the morainal deposits. The

landscape of the glaciofluvial deposits is characterized mainly by undulating surface expression with slopes ranging from two to nine percent. There are small, as well as large, flat areas of organic deposits interspersed within this area.

Organic deposits are prevalent throughout the study but are most widespread in the central and eastern portions. They occur in depressional and level landscape positions where surface waters have accumulated. Small areas of organic deposits are found in the western part of the study area in poorly drained depressions of the knob and kettle topography.

Fluvial materials of recent origin are found along the Sand River and Punk Creeks. These deposits are usually coarse textured and often gravelly.

2.3 Soils

A variety of soils are present in the Special Lakeland area. These differences result from the particular combination and interaction of the soil-forming factors, namely climate, parent material, relief, drainage, and biological activity, all acting through time.

Climate is more important at the regional level. For the sake of soil formation, the whole area is considered to have similar climate. Local differences in climate occur where a south-facing slope may be slightly arid, while a similar north-facing slope may be cool and moist.

The parent material is the base on which other factors act. Most soils in this area have developed on sandy glaciofluvial veneer over weakly to moderately calcareous till. The thickness of the sandy overlay appears to control the type and degree of soil profile development. Soils tend to have Brunisolic profiles in areas where sandy overlays are more than 40 cm thick, while those with thinner overlays often have Luvisolic profiles. However, all the other factors interact to determine the type of soil profile finally developed.

The factors of relief and drainage are strongly related, as low-lying flat areas tend to have poor drainage, while higher or sloping areas tend to be well drained.

Vegetation is an important soil-forming factor, but is also a function of soil. Vegetation is rooted in the soil, withdraws nutrients from it, and in turn influences the micro-environment at the soil surface and releases gases and enzymes into the soil during growth. The remains of dead organisms are decomposed by micro-organisms in the soil and mineral elements are released to the nutrient cycle.

The soils of the Special Lakeland area were classified according to the System of Soil Classification for Canada into soil subgroups within various great groups and orders. The classification was based on major differences in morphological features exhibited by soil profiles, in particular the presence or absence of certain diagnostic horizons and the internal soil drainage.

The following is a brief description of soils found in the study area.

2.3.1 Luvisolic Soils

The soils of the Luvisolic Order have developed under forest vegetation and are characterized by strongly leached, light colored A horizons (Ae) underlain by dense, aggregated B horizons (Bt) in which clays are the dominant accumulation product. Under forest vegetation organic matter has been added to the surface in the form of leaf litter and has decomposed relatively rapidly, thus producing a thin organic horizon (L-H) on the surface of the mineral soil.

The dominant subgroup occurring in the Special Lakeland area is the Orthic Gray Luvisol which consists of well to moderately well drained soils developed mainly on clay loam till. These soils are identified by a thin, generally five to eight cm thick, partially decomposed Organic horizon (L-H) overlying a leached, five to 10 cm thick, brown to pale brown Ae horizon. This horizon is sand or loamy sand, single grained, and loose in consistency. It is low in organic matter and total nitrogen content, and has a strongly acid (pH 4.5 to 5.8) reaction. Occasionally a loamy sand transitional horizon (AB), six to nine cm thick, is found underlying the Ae horizon. The Bt horizon often occurs within 35 cm of the surface. This horizon is generally brown to dark yellowish brown, clay loam to clay in texture, and exhibits a weakly to moderately developed fine subangular blocky structure. The increased clay content of this horizon provides a

higher water holding capacity than the horizons above and below. The parent geologic material (C horizon) is brown to dark yellowish brown, clay loam, and has hard, sticky and plastic consistency.

Some of the Luvisolic soils in the area belong to the Brunisolic Gray Luvisol subgroup. These soils are found in areas where the sandy overlay is more than 15 cm thick. They generally have eluvial (Ae) horizons positioned in the sandy overlay and illuvial textural B horizons in the underlying till material. The upper solum consists of a well developed, generally pale brown Ael horizon that is sand or loamy in texture, single grained and loose in consistency. The underlying brown to yellowish brown Bm horizon is generally loamy sand, single grained in structure, and loose in consistency. The Ae2 horizon is usually grayish brown to pale brown in color and has an irregular diffuse boundary with the underlying Bt horizon. The upper sola of these soils represent early stages of podzolic development in the Ae horizons of the Orthic Gray Luvisols. The lower solum consists of a textural B (Bt) horizon that is brown to dark brown, clay loam to clay in texture and exhibits weakly developed, fine subangular blocky structure. The parent material (C horizon) of these soils ranges in texture from sandy clay loam to clay loam with occasional sand lenses.

The sola (A and B horizons) of these soils are generally 35 to 45 cm thick, strong to medium acid (pH 5.4 to 5.9) in reaction, and have low organic matter and total nitrogen contents.

2.3.2 Brunisolic Soils

These are well drained to excessively drained soils formed under forest vegetation. They have weakly or strongly developed leached Ae horizons underlain by brownish colored Bm horizons. They have relatively thin sola within profiles that appear to be less strongly developed than those of the Luvisolic order. This may be a function of the relatively coarse texture of the parent materials.

The dominant subgroup occurring in the Special Lakeland area is the Eluviated Eutric Brunisol. Soils of this subgroup are found in areas where the sandy overlay is more than 40 cm thick. These soils are identified by a thin (generally three to five cm thick), relatively decomposed organic surface horizon (L-H) overlying a leached, five to eight cm thick, grayish brown to light brownish gray Ae horizon. The Bm horizon in which the pH is usually 5.5 or higher, is generally brown to dark brown in colour and occurs within 25 cm from the surface. The C horizon is yellowish brown and represents glaciofluvial deposits.

The A, B and C horizons of these soils are sand and occasionally loamy sand in texture, single grained, loose in consistency, and very permeable with no restrictions to downward or lateral movement of water. The internal drainage may be impeded somewhat due to underlying finer textured II C horizon which in most profiles is found within 50 cm of the surface.

The sola (A and B horizons) of these soils are generally 15 to 25 cm thick, medium acid (pH 5.7 to 5.9) in reaction, and have low organic matter and total nitrogen content.

In addition, imperfectly drained Gleyed Eutric Brunisolic soils occur in association with the well drained Eluviated Eutric Brunisol. These soils are generally found in lower slope positions where the soil is moist due to a seasonal high water table or groundwater discharge. The soil profile is characterized by a black, eight to 10 cm thick, semi-decomposed organic surface horizon (L-H) overlying a leached Ae horizon. The underlying Bmgj and Cgj horizons are commonly dull coloured, and exhibit mottling and gleying features indicative of imperfect internal soil drainage.

2.3.3 Regosolic Soils

Regosols are well drained to excessively drained soils and have horizon development too weak to meet the requirements of soils in any other order. They occur primarily on recent alluvial flood plains.

Only the Orthic Regosol subgroup is found in the study area. Soils of this subgroup have developed on the recent fluvial deposits that exist along the floodplain of the Sand River. The texture of the fluvial material may range from fine sand to sandy loam, although gravelly sand is the most common.

The Orthic Regosols in the area lack distinct horizon development

due to frequent flooding and deposition by the Sand River. On terraces and benches of slightly higher position above the general level of the river, soils may have a dark colored Ah horizon overlying the coarse textured C horizon.

2.3.4 Gleysolic Soils

These soils are found in level and depressional areas where soil development is strongly influenced by poor internal drainage and excess soil moisture conditions. They may have organic surface horizons up to 60 cm thick and are characterized by the presence of distinct mottles of high chroma within 50 cm of the mineral surface.

Most of the Gleysolic soils in the Special Lakeland area belong to the Orthic Luvic Gleysol subgroup. These soils occur in depressional areas where soil development is most strongly influenced by poor internal drainage and excess moisture conditions. They are usually associated with the Orthic Gray Luvisol soils of various landforms. The Orthic Luvic Gleysol soils are identified by Organic L-H horizons overlying a dark coloured Ah horizon less than 8 cm thick. The Ae horizon is grayish brown and shows distinct mottling. The Bt and C horizons are dull colored and indicate reducing conditions.

2.3.5 Organic Soils

Organic soils in the area have developed from fen, fen-forest mixture, or sphagnum peat materials in local lowland areas where they are

saturated with water throughout most of the summer. Cool soil temperatures in combination with this water logged condition reduce the rate at which the organic material decomposes and thus the material accumulates. The Organic soils are separated into great groups on the basis of degree of decomposition of the organic material. Fibric material is relatively raw and undecomposed, mesic material is partly decomposed and humic material is so well decomposed that very little of the organic fibres are discernible.

The Organic soils in the Special Lakeland area were not classified in detail. Most of them have developed from fen-forest peat materials and are classified within the Mesisol and Humisol great groups.

2.4 Fertility Status of the Major Soils

Representative samples of the various soil groups in the study area were collected for laboratory study to evaluate the fertility status of the soils. A stratified sampling procedure was used to obtain two samples at each site from depths of 0 to 15 and 15 to 30 cm, for a total of 17 sites. The test results are listed in Table 2.

In general, the soils of the area are very low in total nitrogen and most are low to very low in phosphorous. Thus, nitrogen and phosphorous applications would be required for optimum production of grasses. A fertilizer recommendation of nutrient requirements for grass pasture was provided by the Alberta Soil and Feed Testing Laboratory and is given in Table 3. In addition, most of the soils will require potash and sulfur

Table 2

SOIL FERTILITY OF CERTAIN SOILS IN THE LAKELAND AREA

Plot No.	Location	Depth (cm)	kilograms per hectare			Sodium	Sulfur	Soil Reaction	Conductivity	Organic Matter
			Nitrogen (N)	Phosphorus (P)	Potassium (K)	(Na)	(S)	(pH)	mmhos	
1	NE13-64-9-W4	0-15	0	180+	80	L-	L	5.9	0.1	L-
		15-30	0	180+	99	L-	L	5.8	0.1	L-
2	NW13-64-9-W4	0-15	0	180+	91	L-	L	5.8	0.1	L-
		15-30	0	180+	77	L-	L-	5.7	0.1	L-
12	NE35-64-8-W4	0-15	0	22	69	L-	L	5.2	0.1	L
		15-30	0	6	104	L-	L	5.5	0.1	L
13	NW35-64-8-W4	0-15	0	11	122	L-	L	5.8	0.1	L
		15-30	0	4	174	L-	L	5.4	0.1	L
14	NW36-64-8-W4	0-15	0	22	142	L-	L+	5.8	0.1	L
		15-30	0	10	399	L-	L	5.6	0.2	L
15	SE36-64-8-W4	0-15	0	27	330	L-	L+	5.6	0.1	L
		15-30	0	12	464	L-	L	5.6	0.2	L+
18	NW17-64-8-W4	0-15	0	28	107	L-	L	5.0	0.2	L
		15-30	0	4	267	L-	L+	4.9	0.2	L+
20	SW31-64-8-W4	0-15	0	2	80	L-	L	5.5	0.1	L
		15-30	0	3	163	L-	L	5.9	0.1	L
23	SW32-64-9-W4	0-15	0	3	231	L-	L	5.1	0.1	L
		15-30	0	2	331	L-	L	5.2	0.1	L+
24	NE28-64-10-W4	0-15	0	5	170	L-	M-	5.4	0.1	L+
		15-30	0	4	119	L-	L	5.7	0.1	L
25	NW33-64-10-W4	0-15	0	0	94	L-	L+	5.6	0.1	L
		15-30	0	3	307	L-	L+	4.7	0.2	L
27	NW26-64-10-W4	0-15	0	9	304	L-	L+	5.6	0.2	L
		15-30	1	4	292	M+	M+	4.7	0.2	L
28	SE25-64-10-W4	0-15	0	5	131	L-	L+	4.8	0.1	L
		15-30	0	4	185	L-	M-	4.6	0.1	L
30	SE23-64-10-W4	0-15	0	7	156	L-	M-	4.7	0.1	L
		15-30	0	3	182	L-	L	4.5	0.1	L
33	SE24-64-10-W4	0-15	0	4	128	L-	L	4.8	0.1	L
		15-30	0	3	257	L	L	4.5	0.1	L
38	NE18-64-9-W4	0-15	0	3	254	L-	M-	5.4	0.2	L
		15-30	0	2	354	L-	L+	5.5	0.2	L
40	NE14-64-10-W4	0-15	0	8	123	L-	L+	5.2	0.1	L
		15-30	0	4	207	L-	L+	4.7	0.1	L

Sodium - kg/ha L - : 63; M +: 313-366
Sulphur - kg/ha L - : 0-1.8; L: 2-3.6; L + : 3.8-5.4; M - : 5.5-8.9; M + : 14.5-21.4
Organic Matter - % L - : 1%; L : 1-2%; L + : 2-3%

Table 3

FERTILIZER RECOMMENDATION - GRAZING PASTURE (No Legumes)[1]

Plot No.	Location	Kilograms Per Hectare of Nutrient Required (N)	(P)	(K)	(S)
1	NE13-64-9-W4	54	0	22	9
2	NW13-64-9-W4	54	0	18	9
12	NE35-64-8-W4	63	22	13	9
13	NW35-64-8-W4	63	18	13	9
14	NW36-64-8-W4	63	22	13	9
15	SE36-64-8-W4	71	9-13	0	9
18	NW17-64-8-W4	71	9-13	13	9
20	SW31-64-8-W4	63	27	22	9
23	SW32-64-9-W4	71	31	0	9
24	NE28-64-10-W4	71	31	9	4-9
25	NW33-64-10-W4	71	27	18	9
27	NW26-64-10-W4	71	18	0	9
28	SE35-64-10-W4	63	31	9	9
30	SE23-64-10-W4	71	27	9	4-9
33	SE24-64-10-W4	71	27	9-13	9
38	NE18-64-9-W4	71	31	0	4-9
40	NE14-64-10-W4	63	22	9	9

[1] If legumes are present in the mixtures, the amount of nitrogen recommended would be less.

applications for grass and legume production.

The majority of the soils in the area have low pH values, down to pH 4.5, and would require lime applications to raise the soil pH for successful production of grasses and legumes. Generally, the plant nutrients needed by crop plants are most likely to be available at around pH 6.5. Low pH in itself affects the growth of legume crops by inhibiting the ability of the nitrogen-fixing Rhizobium bacteria to form nodules on the roots. Grasses are usually more tolerant of acidity than legumes.

A test on four soil samples was conducted by the Alberta Soil and Feed Testing Laboratory to obtain approximate amounts of lime required to raise the pH to 6.5 (Table 4). Soils with a high clay content require more lime than sandy soils. The actual amount of lime required may vary from 0.2 to 0.9 tonnes per hectare.

2.5 Geomorphic Systems

For the purpose of this inventory, the Special Lakeland area was divided into seven geomorphic systems on the basis of origin of the surficial deposits, and landform (Figure 2). These are the component parts of the study area with recurring patterns of landforms as defined and distinguished by mode of origin (genesis), composition, surface expression. Each geomorphic system includes several geomorphic units which represent homogeneous areas in terms of parent geologic material, surface expression, soil texture, slope, aspect, soils, and drainage.

Table 4

LIME REQUIREMENT OF SELECTED SOILS

Plot No.	Location	pH	Amount of 100% Calcium Carbonate Required to Raise Soil pH to 6.5 Tonnes Per Hectare
2	NW13-64-9-W4	5.8	.3[1]
20	SW31-64-8-W4	5.5	.2
28	SE35-64-10-W4	4.8	.5
33	SE24-64-10-W4	4.8	.8

[1] Since most lime sources have a lower neutralizing value than 100% calcium carbonate equivalent (CCE), it is necessary to calculate the effective neutralizing value (ENV) of an agricultural lime or marl by using the formula ENV = CCE X TFEX DMC where TFE is the total fineness efficiency and DMC is the dry matter content.

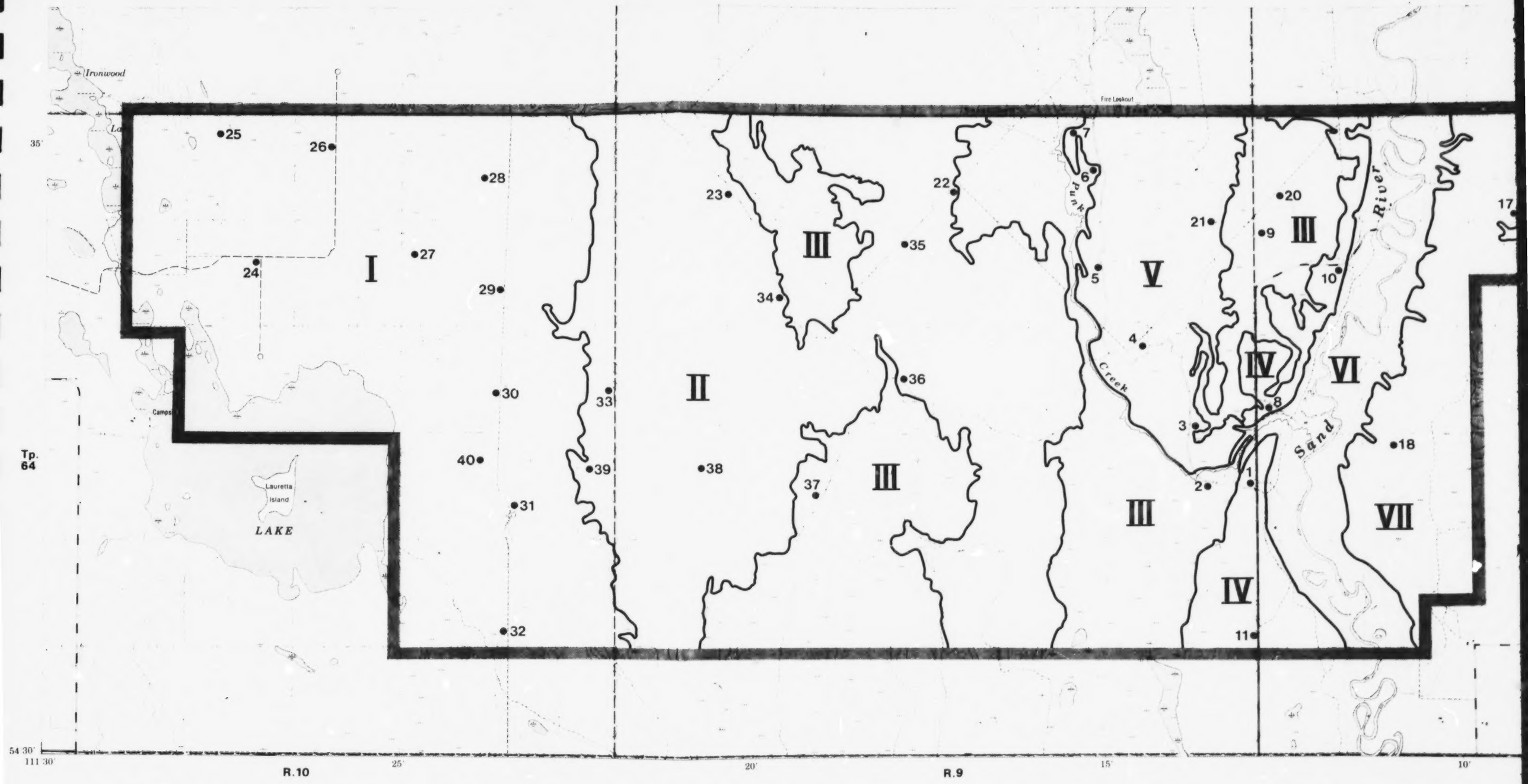


Fig. 2: GEOMORPHIC SYSTEMS

32.5

INTEGRATED RESOURCE INVENTORY
OF THE
SPECIAL LAKELAND STUDY AREA
GEOMORPHIC SYSTEMS
SCALE 1 : 50 000
km 1 0 0 5 0 0 5 1 0 1 5 2 0 km
mi 0 5 0 0 5 1 0 mi
West of the Fourth Meridian
Soil observation site
Study area boundary
III
IV
VI
VII
Sand River
1
8
9
10
11
12
13
14
15
16
17
18
19
20
10'
05'
R.8

These are the fundamental units that can be rated for selected uses.

2.5.1 Geomorphic System I

This system covers approximately 3 800 hectares or 23.2 percent of the study area in the western part of the area (Figure 2). The landscape is characterized by rough, irregular knob and kettle topography with slopes ranging from three to 25 percent. Frequent depressional areas, some many tens of metres long and wide, and small creeks draining to Frenchman Lake dissect the area. The surficial deposits of the area consist dominantly of clay loam till. Small amounts of clay till which probably originated from the shale bedrock, and organic deposits in depressional areas, are also present. A thin overlying layer of sand generally varies from five to 15 cm in thickness. Some of the knobs, however, have sandy cores, and the thickness of sand can average as much as 40 cm.

Soils of the area are dominantly Orthic Gray Luvisol in combination with minor areas of Brunisolic Gray Luvisols and significant amounts of Orthic Luvic Gleysol and Organic soils.

The Orthic Gray Luvisols consist of well to moderately well drained soils that have developed mainly on clay loam till and occupy the middle and upper slopes of the till ridges and knobs. The Brunisolic Gray Luvisols are found in a landscape of subdued ridges with slopes ranging from three to 15 percent. Poorly drained Orthic Luvic Gleysol soils

occupy lower slope positions, and very poorly drained Organic soils are found in depressional interknob areas.

Detailed profile descriptions of Orthic Gray Luvisols at sites 24, 25, 27, 38, 30, 40 and of Brunisolic Gray Luvisols at sites 26, 31, 32 are given in Appendix A.

2.5.2 Geomorphic System II

This system represents a morainal area in the central part of the study area (Figure 2) and covers approximately 4 450 hectares or 24.7 percent of the area. The landscape is characterized by inclined and undulating morainal landforms with slopes generally ranging from three to 15 percent and dissected by easterly, northerly and southerly trending drainage channels. The physiographic position of this system is such that groundwater following the lithology of the underlying material discharges at the base of long uniform slopes. The surficial deposits of the area are composed mainly of clay loam till but some clay till is found on lower slopes. A sandy veneer overlies the till in much of the area. The thickness of the sand generally varies from five to 25 cm and may increase up to 40 cm along some of the creeks.

The system includes mainly well to moderately well drained Orthic Gray Luvisols in combination with significant areas of Brunisolic Gray Luvisol, and lesser amount of Eluviated Eutric Brunisols.

The Orthic Gray Luvisols occur in landforms having a predomin-

antly inclined surface expression and slope gradient from three to 15 percent. Gleyed Gray Luvisols occupy lower slopes where soils are often moist due to continuous seepage from upslopes. The Brunisolic Gray Luvisols are found in areas where a thin glaciofluvial material overlies the glacial till. The sandy overlay, being relatively thin, modifies the existing landscape only slightly. The Eluviated Eutric Brunisols occur adjacent to small inclined stream courses where the sandy glaciofluvial veneer is about 50 cm thick.

Detailed profile descriptions of the soils at sites 22, 23, 33, 34, 35, 36, 38, and 39 are given in Appendix A.

2.5.3 Geomorphic System III

This system occupies approximately 3 900 hectares or 24 percent of the study area and represents poorly drained lowlands in the central and eastern parts of the study area (Figure 2). These areas are characterized by concave and level topography with scattered topographic highs that have undulating or ridged surface expressions. The surficial deposits consist dominantly of organic material and significant amounts of sandy glaciofluvial deposits in elevated areas.

The soils of the system are associated with poor drainage conditions due to continuous groundwater discharge, and are often saturated or nearly saturated throughout the growing season. They include mainly Organic and Gleysolic soils. Organic soils are found in the concave and

and level topographic positions and Gleysolic soils occupy the lowest portion of the flanks of the glaciofluvial areas. Rapidly drained Eluviated Eutric Brunisols are found in a landscape with an undulating or ridged surface expression, which in some cases occur within a predominantly poorly drained area. In some of these areas, although the soil materials are very permeable, the soil profiles may be imperfectly drained due to the influence of a high groundwater table; the soils are classified as Gleyed Eutric Brunisol. Well drained Brunisolic Gray Luvisols are confined to those areas where sandy glaciofluvial deposits occur as a veneer over sandy loam to clay loam till.

Detailed profile descriptions of the soils at sites 2, 6, 9, 20, 37 are given in Appendix A.

2.5.4 Geomorphic System IV

This system, covering approximately 570 hectares or 3.5 percent of the study area, represents a general north-south trending zone of glaciofluvial deposits bordering the west side of the Sand River (Figure 2). The deposition of these materials seems most likely to be associated with the Sand River before it cut down into its present channel. These deposits occur as a veneer, although the depth to the underlying till could be more than one metre in some areas. The underlying till has generally sandy loam to sandy clay loam texture and pseudoplaty structure which could be the result of reworking by glacial meltwaters. The landscape is locally characterized by morainal (till) landforms with undulating and

inclined surface expressions.

The soils of the area are dominantly well drained, due in part to their proximity to the Sand River, and include mainly Eluviated Eutric Brunisol and Brunisolic Gray Luvisol soils.

The Eluviated Eutric Brunisols that have developed on sandy glaciofluvial veneer, 40 to 50 cm thick, over sandy loam to sandy clay loam till, occur on subdued landforms with undulating surface expression and slope gradients ranging from three to nine percent. The Brunisolic Gray Luvisols are found in areas where the sandy glaciofluvial veneer is less than 35 cm thick, and the general topography is controlled strongly by the underlying till. Poorly drained Organic soils occur in level to depressional areas and constitute only a small proportion of the soils.

Detailed profile descriptions of soils at sites 1, 8, 10, and 11 are given in Appendix A.

2.5.5 Geomorphic System V

This system occurs east of Punk Creek and covers approximately 1 030 hectares or 6.3 percent of the study area (Figure 2). The landscape is characterized by level to undulating topography featuring a few short, steep sided ridges which trend in a north-south direction. The surficial materials consist mainly of sandy glaciofluvial veneer over sandy loam to sandy clay loam till and significant areas of organic deposits occurring in level to depressional areas. The glaciofluvial mantle, which varies in thicknesses from 30 cm to over one metre, is an

extension of materials that formed along the Sand River.

The system dominantly includes well drained Eluviated Eutric Brunisols in combination with significant areas of Organic soils and lesser amounts of Brunisolic Gray Luvisols.

The Eluviated Eutric Brunisols are confined to the elevated areas along Punk Creek where the sandy overlay is more than 30 cm thick. The Organic soils occupy depressional areas in the central portion of the system where steep sided ridges are interspersed throughout the landscape. The Brunisolic Gray Luvisols are found in areas where the sandy glaciofluvial veneer is less than 30 cm thick, and the topography is strongly controlled by the underlying till.

Detailed profile description of the soils at sites 3, 4, 5, 7, 21 are given in Appendix A.

2.5.6 Geomorphic System VI

This system encompasses the floodplain and the valley sides and terraces of the Sand River (Figure 2), and covers approximately 950 hectares or 5.8 percent of the study area. The physiographic position of this system is such that flooding and high water table conditions are prevalent for a significant part of the year. The topography of the valley bottom is level to gently undulating, and the elevation is about 500 metres, 60 metres lower than the surrounding uplands. The valley sides often have slopes in excess of 20 percent with some localities

having nearly vertical banks. The surficial deposits consist of sandy and often gravelly fluvial materials on the terraces which occupy slightly higher areas above the general level of the river. On the lower levels however, periodic flooding has deposited additional sediments on top of the existing fluvial deposits to produce alternating layers of various materials ranging from silt loam to sandy loam in texture.

The soils of the area are predominantly Regosolic. Many of these soils have little or no soil profile development due to frequent flooding and deposition by the Sand River. They are characterized by a sandy or loamy sand surface horizon overlying a sandy, often gravelly parent material.

2.5.7 Geomorphic System VII

This geomorphic system covers approximately 1 600 hectares or 9.8 percent of the study area in the eastern part of the area (Figure 2). The landscape is characterized by undulating and inclined morainal landforms with slopes generally ranging from three to nine percent. Much of the area is dissected by small creeks draining south and into the Sand River to the west. The surficial deposits are mainly sandy loam to sandy clay loam till, and include minor amounts of organic deposit in depressional areas. A sandy glaciofluvial veneer with an average thickness of 30 cm mantles the area.

The soils of the area are dominantly Orthic Gray Luvisol in combination with significant amounts of Brunisolic Gray Luvisol, and include

minor amounts of Eluviated Eutric Brunisol and Organic soils.

The Orthic Gray Luvisols are well to moderately well drained and mainly confined to the undulating areas along the Sand River. The Brunisolic Gray Luvisols occur in northern portion of the system where the thickness of the sandy glaciofluvial veneer ranges from 15 to 30 cm. The Eluviated Eutric Brunisols are found in areas adjacent to small streams where sandy overlay is about 50 cm thick. The Organic soils occupy poorly drained depressional areas and old stream channels, and constitute only a small proportion of the soils.

Detailed profile description of the soils at sites 12, 13, 14, 16, 17 and 18 are given in Appendix A.

3. FORAGE CLASSIFICATION

The purpose of the forage inventory is to establish types of vegetation communities that occur within the study area, to determine their species composition, cover, vigor, successional status, and productivity.

3.1 Methodology

3.1.1 Field Sampling

Prior to field sampling, background information from previous resource inventory studies was collected and analyzed to provide a preliminary vegetation stratification of the study area. This includes physical land data from the Land Classification Section, ecological land classification data from the Resource Appraisal Section and forest cover data from the Phase III Forest Inventory Group. Representative field plots were subsequently established within each forest cover type to determine the plant communities as they relate to different site conditions. The locations of the plots were determined from aerial photographs and coincided with soil observations where possible.

At each site, a 20 x 20 m plot was established to determine the tree species composition, percent cover and vigor. A 5 x 5 m plot was used to inventory the shrub layer and a 20 m transect with five 1 x 0.5 m plots was employed to determine forb, grass, moss, and lichen species cover. The plant species were listed according to the following vegetation

layers:

A_1 - dominant tree species

A_2 - main canopy tree species

A_3 - suppressed and intermediate tree species - greater than 5.0 m tall

B_1 - tall shrub species - 2.5 to 5.0 m tall

B_2 - intermediate shrub species - 0.5 to 2.5 m tall

C - forb species

D - mosses and lichens

Ex - grass and grass-like species

EL - short shrub species - less than 0.5 m tall

Other site information collected includes: elevation, slope gradient, aspect, exposure, shape of slope, microrelief, ecological moisture regime, drainage conditions, flood hazard, site disturbance, surface substrate, age and height of the forest stand and general comments about the site.

3.1.2 Biomass

Biomass data for forbs and grasses was collected at pre-established plots at the height of the growing season. This involved clipping the current year's growth on the same transect as previously described for species composition, cover and vigor. This material was then air-dried, weighed, and the weight converted to kilograms per hectare.

Palatable browse biomass, which represents available browse in

winter, was also determined on these pre-established plots at the end of the growing season. A 20 x 0.5 m transect was established and twigs (current year's growth over 2.5 cm) occurring on stems between 0.5 and 2.5 m in height were counted. These stem heights were chosen to represent the range between the average snow depth and the maximum height that an animal can browse. Twigs were clipped on every plant of each palatable species. In some cases, however, where there was an abundance of shrubs, a random sample of twigs from the bottom, middle and top tiers of each or every second plant were taken. This material was air-dried, weighed, and converted to kilograms per hectare.

3.1.3 Data Analysis

The plot data was grouped by species composition, that is, plots having similar species presence and cover values, to define forage types.

The analysis of the data was conducted using the Klinka-Phelps Vegetation Program and the Environmental Site Program. A detailed description of the programs and the actual tables are given in Appendix B.

3.1.4 Mapping

Preliminary mapping was done on aerial photographs with the aid of forest cover and preliminary physical land classification maps. Final mapping was done on 1:15 000 topographic maps using the final physical land classification lines as a base. The forage map units were delineated on the basis of the relationships established, through field sampling,

between vegetation communities and geomorphic units. Each forage map unit is assigned a forage type symbol. A unit may contain a percentage of two different forage types. An example of a mapping symbol is as follows: $8\ A^{7}_{1} - 8\ L^{3}_{1}$

This represents an area in Ecoregion 8 with 70 percent forage type A_1 and 30 percent forage type L_1. In this study area, all types fall into Ecoregion 8, the Boreal Mixedwood and the "8" has been assumed on the forage map symbols.

3.2 Forage Types

The forage types have been separated on the basis of geomorphology and dominant species. They are described in the section to follow in a sequence of the most xerophilic type to the most hydrophilic type and are grouped by dominant tree species.

The major factors that have been used to describe and map these forage types are soils, dominant tree species, and the ages and densities of the forest stands. These factors are all somewhat interdependent. The dominant tree species for each forage type is usually a reflection of the soils. This is shown in the tendency of pine types to occur on rapidly drained sites, aspen and white spruce types to occupy well to imperfectly drained sites and black spruce and tamarack types to inhabit poorly drained sites.

Soil drainage and texture also play a role in fire occurrence, which ultimately determines stand age. A stand which is growing on a

very moist (hygric) or wet (hydric) site will not burn as rapidly as one growing on a drier (xeric) site. Consequently, stand age if often greater on less well drained, finer textured soils and particularly on Organic soils. A moist site also generally supports a denser canopy than either a dry or wet one.

The density of the overstory is often linked to age. Natural thinning of dense young regeneration will begin shortly after disturbance, such as fire, has occurred.

Aspect and elevation are two factors which were found to be much less influential in the development of the forage types for the Special Lakeland area than the factors previously mentioned. This is due to the lack of extreme topographic variation within the area.

3.2.1 Jack Pine Forage Types

The jack pine forage types are located predominantly in the central and eastern portions of the study area. Jack pine is generally restricted to the coarse textured, well to rapidly drained soil types (Eluviated Eutric Brunisols, Dystric Brunisols, Brunisolic Gray Luvisols and Orthic Regosols) as it is better adapted to the arid conditions associated with these sites than other tree species in the area. Although pine shows better growth on mesic sites, aspen affords too much competition in these areas with its rapid suckering and dense canopy. The inability of pine to tolerate shade makes it a poor rival for these sites. Jack pine has developed several adaptations which allow it to retain

dominance on xeric sites, particularly fire. Jack pine is propagated principally by light seed from serotinous cones and therefore requires fire to perpetuate itself. This species has actually increased its flammability by developing a thin, flaky, resinous bark (Ekistic, 1974).

The understory vegetation that is characteristic of these pine types usually reflects the aridity of the sites and the acidity of the soils which results from the decomposition of pine needles. Ericaceous or acid-loving species such as blueberry are particularly adapted to co-existance with pine on dry sites. There are three pine types identified for the study area: Pine-Black Spruce/Feathermoss, Pine/Bearberry/Lichen and Pine/Alder/Blueberry.

Pine-Black Spruce/Feathermoss. The Pine-Black Spruce/Feathermoss forage type (P1) is dominated by a Jack pine overstory with black spruce occurring in the intermediate tree layer. Labrador tea is the most prevalent shrub species with minor amounts of prickly rose present. The herbaceous layer, which is sparse, contains no dominant species although small amounts of blueberry, common bearberry, bunchberry, bog cranberry, and twinflower are consistently present. The ground cover is dominated by a mixture, in varying proportions, of feathermosses and lichens. The principal moss encountered is Schreber's moss and the dominant lichen is reindeer lichen. There are minor amounts of knight's plume moss and hair cap moss (Environment and Vegetation Table, Appendix B).

The main canopy averaged 53.8 percent with a mean height of 16.0 m and an average of 43.5 years. The dominant trees usually averaged

older at 59.3 years, due to the presence of veteran trees that survived previous fires.

This type is generally found in the study area in subxeric to xeric sites where drainage is rapid and is usually associated with the presence of black spruce bogs. These sites occur on elevated areas of glaciofluvial material with Eluviated Eutric Brunisolic soils. Occassionally, the Pine-Black Spruce/Feathermoss type is found where drainage is less rapid and the dominant soils are Gleyed Eutric Brunisols or Brunisolic Gray Luvisols. This variation is reflected in the density of the overstory and the changes in cover values for some species. A high percent cover value for the lichen species, particularly reindeer lichen, in conjunction with an open tree canopy generally indicates the presence of xeric conditions. There is an increase in the feathermoss cover and the density of the overstory where drainage is less rapid and site conditions become less xeric. The understory species, although variable, always reflect the acidic nature of the soil under coniferous stands. Ericaceous species, such as Labrador tea, blueberry, bearberry and bog cranberry, are usually present.

Succession to white spruce is inhibited on these sites due to their aridity and/or their isolation from a seed source. Black spruce, which provides a readily available seed source from the nearby bogs, appears to be the climax tree species in these areas. The isolation of these sites from fire by the surrounding wetlands helps to perpetuate black spruce rather than pine.

Plots located in this forage type often had a very barren appearance. Browse was considered to be non-existent and therefore no clipping was done. Biomass was consistently low and averaged only 1.4 kg/ha for forbs and 1.6 kg/ha for grasses.

There is some correlation between this forage type and the *Pinus/Picea mariana-Pleurozium* (Pine-Black Spruce/Schreber's moss) type identified for the mixedwood section of Saskatchewan (Kabzems et al, 1976). The Special Lakeland type does not appear to be confined to imperfectly drained sites and consequently there were differences in the understories of these two types. A brief comparative summary appears in Table 5.

Pine/Bearberry/Lichen

The Pine/Bearberry/Lichen forage type (P2) is characterized by an open jack pine overstory which is of consistent height and fairly even age. There is a very sparse shrub layer present, composed of stunted, scattered specimens of Saskatoon-berry and prickly rose. The forb stratum is dominated by low ericaceous species (common bearberry and bog cranberry) with minor amounts of blueberry, harebell, and wild lily-of-the-valley. Grasses are generally very sparse. There is a substantial cover of bryophytes, composed largely of reindeer lichen and small amounts of hair cap moss (Environment and Vegetation Tables, Appendix B).

The main canopy averages only 30.0% cover with an average height of 13.7 m and a mean age of 56.4 years. The dominant tree layer is older,

Table 5

PINE-BLACK SPRUCE/FEATHERMOSS TYPE

Special Lakeland Forage Type	Mixedwood-Saskatchewan type (page 88)
Association	
Pine-Black Spruce/Feathermoss	*Pinus/Picea mariana-Pleurozium*
Major Species	
jack pine, black spruce Schreber's moss, reindeer lichen	jack pine, black spruce Schreber's moss
Minor Species	
prickly rose, Labrador tea blueberry, common bearberry, bog cranberry, twinflower, bunchberry knight's plume moss, hair cap moss	bunchberry, palmate-leaved coltsfoot knight's plume moss, stair-step moss
Age	
43.5 years	matures at 110-120 years
Parent Materials	
glaciofluvial	glaciofluvial and fluvial-lacustrine deposits overlying glacial till

averaging 63.6 years, and taller, with a mean of 17.1 m, due to the presence of veteran trees.

The Pine/Bearberry/Lichen forage type is restricted to subxeric and xeric sites where there is a thick overlay of sandy glaciofluvial material. The soils in these areas are predominantly Eluviated Eutric Brunisols, Dystric Brunisols, and Orthic Regosols.

Succession to white spruce is severely retarded on these sites, largely due to their aridity and sterility. The flammability of pine in conjunction with the dryness of these areas has encouraged the occurrence of repeated intense fires. Consequently, Pine/Bearberry/Lichen may form an edaphic climax on these sites.

The sparseness of the understory and overstory of this type reflects the extreme aridity of these sites. Palatable browse was deemed to be too low to measure, therefore no clipping was undertaken. The biomass values averaged quite low at 1.6 kg/ha for forbs and 3.6 kg/ha for grasses.

This Special Lakeland forage types bears strong resemblance to the *Pinus-Cladonia/Arctostaphylos* (Pine/Bearberry/Reindeer Lichen) type identified for the mixedwood section of Saskatchewan (Kabzems et al, 1976). A brief comparative summary appears in Table 6.

Table 6

PINE/BEARBERRY/LICHEN TYPE

Special Lakeland Forage Type	Mixedwood-Saskatchewan Type (page 44)
Association	
Pine/Bearberry/Lichen	*Pinus-Cladonia/Arctostaphylos*
Major Species	
jack pine common bearberry, bog cranberry reindeer lichen	jack pine common bearberry reindeer lichen
Minor Species	
prickly rose, Saskatoon-berry blueberry, wild lily-of-the-valley, harebell hair cap moss	green alder wild lily-of-the-valley, early blue violet bluegrass
Age	
56.4 years	matures 80-100 years
Parent Materials	
glaciofluvial	glaciofluvial, fluvial-lacustrine and aeolian

Pine/Alder/Blueberry & Pine/Alder/Twinflower/Feathermoss. The Pine/Alder/Blueberry subtype (P3a) and the Pine-Alder/Twinflower/Feathermoss subtype (P3b) represent two phases of a single type. These two phases have been combined for the purpose of mapping as they are often intermixed and difficult to identify separately on aerial photographs.

The Pine/Alder/Blueberry subtype, which is the drier of the two phases, is characterized by a jack pine overstory with varying amounts of aspen present. Green alder is the dominant shrub although minor amounts of Labrador tea and prickly rose are consistently present. The herbaceous layer (forb and grass) is dominated by blueberry and bog cranberry with lesser amounts of fireweed, wild lily-of-the-valley, common bearberry, bunchberry, twinflower, and hairy wild rye. The moss layer is sparse but Schreber's moss and hair cap moss are consistently present (Environment and Vegetation Tables, Appendix B).

The main canopy averages 14.8 m in height, 38.5 years in age and 48.1% in cover density. The dominant tree layer averaged 53.7 years in age, indicating the presence of veteran trees.

Palatable browse for the subtype is 4.6 kg/ha and biomass averaged 84 kg/ha for forbs and 79 kg/ha for grasses.

The more moist phase, Pine/Alder/Twinflower/Feathermoss, is also characterized by a jack pine overstory with lesser amounts of aspen. The shrub layer is again dominated by green alder, although its cover is

almost 50% higher. The minor shrub species include prickly rose and wild red raspberry. The major forb species are twinflower and bunchberry with lesser amounts of blueberry, bog cranberry, fireweed, wild lily-of-the-valley and star-flower. There are minor amounts of the grasses, hairy wild rye and northern reed grass, consistently present. The dominant moss is Schreber's moss with lesser amounts of the other two feathermosses, stair-step and knight's plume moss.

The main canopy cover averages 55.0% with mean age of 60.6 years and an average height of 19.6 m. The dominant tree layer averages slightly higher, 68.8 years, due to the occasional presence of veteran trees. There are two plots located in very old pine stands (approaching 100 years) which causes the average tree ages for this subtype to be higher than its drier counterpart.

Palatable browse was very scarce in this subtype, so clipping was deemed to be unnecessary. The mean biomass is 7.8 kg/ha for forbs and 1.4 kg/ha for grasses.

This complex type was found dominantly on Eluviated Eutric Brunisols and Brunisolic Gray Luvisols with lesser occurrences on Orthic Regosols and Dystric Brunisols.

In the transition from the driest phase to the wettest, many of the dominant species become minor species and some of the minor species increase in cover to become dominant. Bunchberry, twinflower, and the feathermosses are present but low in cover value in the drier phase while blueberry and

bog cranberry are minor species on the wetter sites. The moss cover increases substantially as the sites become wetter, usually at the expense of total forb cover.

Succession to white spruce is likely in these areas and the presence of young white spruce trees was often noted in the understory of this type.

This complex Special Lakeland forage type has a counterpart identified for the mixedwood region of Saskatchewan as *Pinus-Vaccinium vitis-idaea/Pleurozium* (Pine/Bog Cranberry/Schreber's moss) (Kabzems et al, 1976). The variation which resulted in the establishment of two subtypes for the Special Lakeland area was noted and described for the mixedwood section of Saskatchewan as well. A comparison of the two types appears in Table 7.

Jack Pine Discussion. Jack pine is a significant tree species in the Special Lakeland study area although it does not occur over large areas. It is unlikely to increase in coverage due to the present fire control measures.

All of the jack pine forage types are found on glaciofluvial parent materials with well to rapidly drained soils, including dominantly Eluviated Eutric Brunisols, Brunisolic Gray Luvisols and lesser amounts of Orthic Regosols and Dystric Brunisols. As the sites become more arid, a corresponding decrease in species diversity and cover density takes

place. The driest sites are generally devoid of shrubs and have a minimum of forbs and grasses. The two driest pine types, Pine-Black Spruce/Feathermoss and Pine/Bearberry/Lichen, have many species in common, although Pine/Bearberry/Lichen is generally removed from any source of black spruce seed.

The ground cover is dominated by lichens with some mosses. As the sites become more hygric, tall shrubs appear, particularly green alder, and the various low, woody ericaceous species present become more prevalent.

As the sites become more moist, the density of the canopy increases and aspen, paper birch and white spruce appear as either codominants with jack pine or as intermediate species. Various forbs and the feathermosses are more evident and the grass cover is higher.

The only tree species that occurs with any frequency on xeric sites with pine is black spruce. Black spruce is somewhat limited by its lack of adaptation to fire, that is, its shallow root system is readily destroyed by fire (Ekistic, 1974). Consequently, the areas occupied by pine-black spruce stands are proximal to wetlands where there is both protection from fire and a seed source for black spruce. Occasionally, where tamarack is the prevalent species in the nearby bog or fen, it will be found growing with pine on these drier sites. Tamarack is not as shade tolerant as black spruce, therefore it is not expected to ever dominate on these sites.

Table 7

PINE/ALDER/BLUEBERRY & PINE/ALDER/TWINFLOWER/FEATHERMOSS TYPE

Special Lakeland Forage Type	Mixedwood-Saskatchewan Type (page 52)
Association	
Pine/Alder/Blueberry Pine/Alder/Twinflower/Feathermoss	*Pinus-Vaccinium vitis-idaea/ Pleurozium*
Major Species	
jack pine	jack pine
green alder	green alder
blueberry, bog cranberry	blueberry, bog cranberry
bunchberry, twinflower	bunchberry, star-flower
Schreber's moss	Schreber's moss, reindeer lichen
Minor Species	
aspen	
prickly rose, Labrador tea, wild red raspberry	
fireweed, wild lily-of-the-valley, star-flower, common bearberry	ground cedar, rattlesnake plantain, stemless lady's slipper
northern reed grass, hairy wild rye	
knight's plume moss, stair-step moss, hair cap moss	knight's plume moss, stair-step moss
Age	
38.5-60.6 years	matures 100-110 years
Parent Materials	
glaciofluvial, till overlain by glaciofluvial deposits	glacial till or glaciolacustrine deposits overlain by fluvial-lacustrine deposits

3.2.2 Aspen Forage Types

Aspen covers a large part of the Special Lakeland study area and is considered to be the tree species that characterizes the ecoregion (Strong and Leggat, 1981).

Aspen generally occurs on a range of soils varying from rapidly to imperfectly drained. It is a transitional species, and is usually succeeded by white spruce in this area. Disturbance, such as fire or clear-cutting, will rejuvenate aspen, otherwise decay sets in and the stands ultimately decline and die before they reach 120 years old (Moss, 1955). However, aspen does not recover well from repeated intensive burning as the suckers are weakened and/or killed. The large aspen-dominated portions of the study area have resulted from the frequency of light fire in the past.

The deterioration of the aspen stands is usually accompanied by the increased growth of white spruce in the understory. Where large areas of aspen have been generated by regular occurrences of fire, succession to white spruce may be hampered by a lack of mature spruce to produce seed.

There are three aspen forage types identified for the study area: Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla, Aspen/Poplar-Cranberry, and Aspen/Cranberry/Sarsaparilla.

Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla. This forage type consists of two phases; the Aspen/Alder/Twinflower subtype (Ala) and the Aspen/Willow/Sarsaparilla (Alb). This complex type is confined to the eastern and central portions of the study area and generally occurs on glaciofluvial parent materials.

The Aspen/Alder/Twinflower subtype, which is the drier phase of the type, is characterized by a dense aspen overstory with white spruce and balsam poplar as minor components. Green alder dominates the shrub layer with lesser amounts of beaked willow, low-bush cranberry, and prickly rose present. The forb layer is composed mainly of twinflower with a number of other species consistently present. These include dewberry, wild lily-of-the-valley, common pink wintergreen, Lindley's aster, bunchberry, common yarrow, common bearberry, harebell, fireweed, wild strawberry, northern bedstraw, early blue violet and blueberry. Hairy wild rye is the only grass species that is commonly found in this subtype (Environment and Vegetation tables, Appendix B).

The main canopy averages 55.7% cover, 15.1 m in height and is approximately 50 years old (Phase III forest cover value).

Palatable browse biomass averaged 9.2 kg/ha. Biomass for forbs and grasses averaged 173 kg/ha and 73 kg/ha respectively.

The Aspen/Willow/Sarsaparilla subtype, which occupies more moist sites than the Aspen/Alder/Twinflower subtype, is characterized by a fairly dense aspen overstory that includes minor amounts of white spruce

and balsam poplar. Green alder is present in the shrub layer although beaked willow and low-bush cranberry are much more prevalent. Other minor shrub species include prickly rose, snowberry, bracted honeysuckle and twining honeysuckle. The herbaceous layer is dominated by wild sarsparilla with lesser amounts of palmate-leaved coltsfoot, cream-colored vetchling, wild vetch, twinflower, common yarrow, dewberry, Lindley's aster, wild lily-of-the-valley, star-flower, bunchberry, wild strawberry, fireweed, pink wintergreen, and hairy wild rye. Traces of a moss layer (usually composed of *Brachythecium salebrosum*) are apparent in this type (Environment and Vegetation tables, Appendix B).

The main canopy averaged slightly higher cover than the dry phase, at 61.9%, with a height of 15.5 m and an approximate age of 50 years.

The palatable browse averaged 4.1 kg/ha, which was slightly lower than the drier subtype. Other biomass values were consistently higher, with values of 328 kg/ha for forbs and 90 kg/ha for grasses. This complex type occurs on Brunisolic Gray Luvisols, Eluviated Eutric Brunisols, and Orthic Regosols.

There was no significant increase in species diversity from one subtype to the other and considerable similarity in the major and minor species exists between these two phases. The variation within this complex type appears to be largely confined to differences in mean cover percentages and the biomass values. Consequently, the Aspen/Alder/

Twinflower subtype and the Aspen/Willow/Sarsaparilla subtype were considered to be phases of the same type rather than two separate types.

White spruce is expected to succeed the aspen on these sites. Young spruce are already evident in the understory of some aspen stands. The transition to a white spruce-dominated type will not occur for at least 30 or 40 years as the aspen in these areas is less than 50 years old and still appears to be fairly healthy.

A similar type, *Populus-Corylus* (Aspen/Beaked Hazelnut), has been identified for the mixedwood section of Saskatchewan. This type and the Special Lakeland complex forage type were both found to be quite variable in the dominant species and consequently, difficult to interpret (Kabzems et al, 1976). A comparative summary appears in Table 8.

Aspen-Poplar/Cranberry. The Aspen-Poplar/Cranberry forage type (A2) occurs in the central and eastern portions of the study area. This type is dominated by aspen and balsam poplar in the overstory with a white spruce component in the understory. The shrub layer consists primarily of low-bush cranberry with lesser amounts of prickly rose and twining honeysuckle. There is no single dominant species in the forb layer although many species are present in small amounts. These include wild sarsaparilla, bunchberry, fireweed, wild strawberry, northern bedstraw, wild lily-of-the-valley, palmate-leaved coltsfoot, common pink wintergreen, dewberry, star-flower and western Canada violet. Grasses and mosses are very sparse (Environment and Vegetation tables, Appendix B).

Table 8

ASPEN/ALDER/TWINFLOWER & ASPEN/WILLOW/SARSAPARILLA TYPE

Special Lakeland Forage Type	Mixedwood-Saskatchewan type (page 58)
Association	
Aspen/Alder/Twinflower Aspen/Willow/Sarsaparilla	*Populus-Corylus*
Major Species	
aspen	aspen
green alder, beaked willow, low-bush cranberry	*beaked hazelnut
wild sarsaparilla, twinflower	wild sarsaparilla, hairy wild rye
Minor Species	
white spruce, balsam poplar	
bracted honeysuckle, twining honeysuckle, prickly rose, snowberry	prickly rose
dewberry, fireweed, common pink wintergreen, harebell, Lindley's aster, wild strawberry, star-flower, wild vetch, cream-colored vetchling, early blue violet, bunchberry, yarrow, palmate-leaved coltsfoot, wild lily-of-the-valley	bishop's cap, wild strawberry, twinflower, dewberry, bunchberry, cream-coloured vetchling, fireweed, palmate-leaved coltsfoot, bog cranberry
hairy wild rye	
Age	
50 years approximately	matures 80-85 years
Parent Materials	
glaciofluvial, morainal	glacial till and some glaciolacustrine and fluvial-lacustrine

*The lack of beaked hazelnut in the Special Lakeland type may be a local phenomenon, it appears to be sporadic in occurrence in the study area.

The main canopy is taller, older and more open than the other aspen forage types. The mean canopy cover is 47.5% with a height of 20.4 m and an approximate age of 100 years (Phase III forest cover value).

This forage type occupies submesic to mesic sites with predominantly Brunisolic Gray Luvisols and Orthic Gray Luvisols, and lesser amounts of Eluviated Eutric Brunisols.

The Aspen-Poplar/Cranberry type is the oldest of the aspen types. The age of the main canopy in conjunction with the openness of the overstory indicates that these stands are probably past maturity and into decline. The decrease in canopy density has facilitated an increase in the understory cover, particularly the low and medium shrubs.

Succession to white spruce appears to be certain for this type, providing fire does not invade the area. The opening up of the forest canopy that accompanies the decline in aspen vigor encourages rapid growth by the white spruce present in the understory (Moss, 1955).

The palatable browse and forb biomass values were fairly high due to the increase in shrub cover. The average values are 37.7 kg/ha for browse, 361 kg/ha for forbs and 76 kg/ha for grasses.

This Special Lakeland forage type bears some resemblance to the *Populus/Corylus* type (Aspen/Beaked Hazelnut) already mentioned and to the *Populus-Aralia/Linnaea* (Aspen/Sarsaparilla/Twinflower) type identified for

the mixedwood region of Saskatchewan (Kabzems et al, 1976), however, it could not be correlated specifically with either one of these types.

Aspen/Cranberry/Sarsaparilla. The Aspen/Cranberry/Sarsaparilla forage type (A3) is characterized by a dense tree layer composed almost entirely of aspen. The occurrence of other tree species appears to be restricted to minor amounts of balsam poplar and white spruce.

There is no dominant species in the tall shrub layer although small amounts of beaked willow were frequently present. The medium and low shrub layers are dominated by low-bush cranberry in association with lesser amounts of beaked hazelnut, wild red raspberrry, snowberry, Saskatoon-berry, and prickly rose.

The forb layer, which is generally tall, is dominated by wild sarsaparilla with significant amounts of fireweed. Minor forb species of consistent presence are common pink wintergreen, Lindley's aster, bunchberry, cream-colored vetchling, wild vetch, dewberry, wild strawberry, and palmate-leaved coltsfoot. These were also minor amounts of the two grasses, hairy wild rye and northern reed grass. Mosses were very sparse in this type (Environment and Vegetation tables, Appendix B).

The main canopy has a very high mean cover value of 76.0% with an average height of 18.0 and an approximate age of 50 years (Phase III forest cover value).

The Aspen/Cranberry/Sarsaparilla type occurs on mesic sites in the western portion of the study area and is found predominantly on Orthic

Gray Luvisols with minor occurrences on Brunisolic Gray Luvisols and Orthic Gleysols.

The understory species that characterize this type are largely the result of the mesic site conditions and the deep shade generated by the dense overstory. Low-bush cranberry and wild sarsaparilla are both very shade tolerant species. Fireweed, which appears as a co-dominant with wild sarsaparilla in some plots, prefers more open sites. An increase in the cover value for fireweed usually corresponds with a decrease in the density of the main canopy (Rowe, 1956).

Succession to white spruce may be retarded due to the lack of a seed source. Frequent light fire in the past has perpetuated aspen at the expense of white spruce (Rowe, 1953 from Moss, 1955). Present fire control measures should assist in re-introducing white spruce into these areas although the process is very slow. The biomass for forbs, grasses and browse averaged 207 kg/ha, 56 kg/ha, and 20.3 kg/ha respectively.

This Special Lakeland type bears close resemblance to the *Populus-Aralia/Linnaea* (Aspen/Sarsaparilla/Twinflower) type described for the mixedwood section of Saskatchewan (Kabzems et al, 1976). A brief comparative summary appears in Table 9.

Aspen Discussion. The aspen forage type generally occupy submesic to mesic sites with well and moderately well drained soils. Balsam poplar, which occurs as a minor component in some of the aspen types, usually prefers the moderately well-drained sites. The more xeric and hydric sites

Table 9

ASPEN/CRANBERRY/SARSAPARILLA TYPE

Special Lakeland Forage Type	Mixedwood-Saskatchewan Type (Page 78)
Association	
Aspen/Cranberry/Sarsaparilla	*Populus-Aralia/Linnaea*
Major Species	
aspen	aspen
lowbush cranberry	
wild sarsaparilla	wild sarsaparilla, twinflower
Minor Species	
snowberry, beaked hazelnut, beaked willow, prickly rose, Saskatoon-berry, wild red raspberry	prickly rose
Lindley's aster, bunchberry, cream-colored vetchling, wild vetch, fire-weed, common pink wintergreen, dew-berry, tall mertensia, wild strawberry, wild lily-of-the-valley, palmate-leaved coltsfoot	fireweed, dewberry, bog cran-berry, wild strawberry, bunch-berry, cream-colored vetch-ling, bishop's cap, palmate-leaved coltsfoot
hairy wild rye, northern reed grass	marsh reed grass
Age	
50 years approximately	matures 80-85 years
Parent Materials	
morainal	glacial till

support only sparse and poor aspen growth. If white spruce is present, it usually occurs either as an understory species in the shrub layer or as tall mature trees occupying small localized areas of poor drainage. These areas, which are too small to be mapped, appears as sedge-dominated sites with concentric rings of balsam poplar or paper birch and white spruce surrounding them. The trees in these small areas appear to be fairly old and therefore are probably remnants of stands that existed before the last fire.

Aspen is not a climax tree species in the study area; it is generally transitional to another species. In the dry mixedwood subregion where conditions are generally too arid for balsam fir (Ekistic, 1977), succession is usually to white spruce after the first generation of aspen. The exceptions to this generalization occur either when a seed source is lacking or when fire decimates the existing aspen stand. Repeated light fires serve to stimulate aspen regrowth and may eventually exclude white spruce, even in the understory, over large areas. This appears to be the situation that has developed in the western portion of the study area. These areas are slow to revert to white spruce types.

As the aspen stand ages, the proportion of balsam poplar increases as the total number of stems per acre decreases. This is due largely to the superior ability of balsam poplar to withstand and resist disease. Balsam poplar may attain 135 years in age while aspen usually does not exceed 120 years (Moss, 1955). The Aspen-Poplar/Cranberry forage type is approximately 100 years old and has a greater percentage cover for

balsam poplar than the younger types in spite of its reduced total canopy cover.

There are trends in the composition of the understory vegetation that characterize the change from a dense overstory to a more open one. One of the principal factors controlling the structure of the understory is light. Where the canopy is very dense, as in the Aspen/Cranberry/Sarsaparilla forage type, the major shrub and herb species are characterized by a very low light requirement. Consequently, low-bush cranberry and wild sarsaparilla dominate in these areas rather than blueberry and common bearberry. Higher biomass values and an increase in the grass cover usually accompany a decrease in the density of the overstory as shown in the differences in the values obtained for the dense Aspen/Cranberry/Sarsaparilla type versus the more open Aspen-Poplar/Cranberry type.

The Aspen/Cranberry/Sarsaparilla forage type generally succeeds to the Aspen-Poplar/Cranberry type in the absence of fire. There is a marked similarity in the major and minor species present in both types.

The Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla complex type will probably not succeed to the Aspen-Poplar/Cranberry type. The consistent presence of white spruce in the understory of the complex type indicates that succession will probably be to a mixed white spruce-aspen stand before a climax white spruce stand is attained. In contrast, the aspen-balsam poplar component will be very decadent before white spruce establishes itself in the Aspen-Poplar/Cranberry type.

3.2.3 White Spruce Forage Types

The white spruce types occupy the submesic to subhygric sites and generally are found on the same soils under similar site conditions as aspen. White spruce occurs more frequently on subhygric sites than does aspen; this is largely due to the burn patterns of previous fires. The spread of fire is slower on more moist sites and therefore white spruce is not as frequently destroyed in these areas. As previously mentioned, white spruce succeeds aspen after one generation.

White spruce tends to occupy more hygric sites and these stands therefore contain significant amounts of moisture tolerant balsam poplar if a deciduous component is present.

There are two white spruce forage types identified for the Lakeland study area: White Spruce-Aspen/Cranberry/Sarsaparilla and White Spruce/Feathermoss.

White Spruce-Aspen/Cranberry/Sarsaparilla. The White Spruce-Aspen/Cranberry/Sarsaparilla forage type (Sw1) is dominated by white spruce overstory with a variable deciduous component of aspen and balsam poplar. The hardwood species appear to be past maturity and into decline, judging by the amount of fallen and decaying wood present in this type. The shrub layer, which is quite prominent, is dominated by low-bush cranberry with lesser amounts of snowberry, prickly rose, and bracted honeysuckle. The forb layer is characterized by the presence of tall species, especially wild sarsaparilla, fireweed, Lindley's aster and tall mertensia. The

lower forb layer includes minor species such as wild strawberry, bunchberry, common horsetail, palmate-leaved coltsfoot, dewberry, bishop's-cap, northern bedstraw, wild lily-of-the-valley, and twinflower. There is an emerging moss layer comprised of minor amounts of *Brachythecium salebrosum* and the three feathermosses, Schreber's moss, stair-step moss, and knight's plume moss (Environment and Vegetation tables, Appendix B).

The main canopy cover is relatively low, at 53.6% with an average height of 22.4 m. The ages of the white spruce trees present in the main canopy and the understory are quite variable, with an average of 78.1 years. This is probably due to sporadic introduction of white spruce seed into the areas occupied by this type.

This forage type occurs on both morainal and glaciofluvial parent materials with associated Brunisol Gray Luvisols, Orthic Gray Luvisols and Orthic Gleysols.

Succession to the climax White Spruce/Feathermoss type is assured on these sites if fire is prevented. At a stand age of 70-80 years, the white spruce and aspen are about equal in height and dominance if they were initiated at the same time. At 100-120 years old, the spruce begins to overtop what remains of the hardwood portion (Kabzems et al, 1976).

The biomass for forbs averaged fairly high for this type, with a mean value of 321 kg/ha. The biomass for grasses averaged 38. kg/ha and the palatable borwse was only 2.0 kg/ha.

A similar type, the *Picea glauca/Populus/Cornus* (White Spruce-Aspen/Bunchberry) type, was identified for the mixedwood section of Saskatchewan. There is a certain amount of variability in both this type and the Lakeland type that can be attributed to changes in the proportion of hardwoods versus softwoods (Kabzems et al, 1976). A brief comparative summary of the two types appears in Table 10.

White Spruce/Feathermoss. The White Spruce/Feathermoss forage type (Swl) represents the climax association for the dry mixedwood subregion, however, the repeated burning of the area has restricted its total coverage to a very small portion of the study area.

The dense overstory consists of a tall white spruce, often with no other tree species present. The most prominent feature of this type is its lack of distinct shrub, forb and grass layers. There were no dominant shrubs and only very minor occurrences of low-bush cranberry. The minor forb species are also very sparse and usually low growing. These include twinflower, bunchberry, rattlesnake plantain, bishop's-cap and dewberry.

The dense overstory, coupled with the acidic soil conditions produced by decaying conifer needles, has created a habitat only suitable for moss proliferation. The feathermoss layer averages 86.3% cover and is composed of dominantly stair-step moss with less amounts of Schreber's moss and knight's plume moss (Environment and Vegetation tables, Appendix B).

Table 10

WHITE SPRUCE-ASPEN/CRANBERRY/SARSAPARILLA TYPE

Special Lakeland Forage Type	Mixedwood-Saskatchewan Type (Page 61)
Association	
White Spruce-Aspen/Cranberry/ Sarsaparilla	*Picea glauca/Populus-Cornus*
Major Species	
white spruce, aspen, balsam poplar low-bush cranberry wild sarsaparilla	white spruce, aspen bishop's cap, bunchberry*
Minor Species	
snowberry, prickly rose, bracted honeysuckle Lindley's aster, bunchberry, northern bedstraw, twinflower, wild lily-of-the-valley, tall mertensia, bishop's cap, dewberry, palmate-leaved coltsfoot, common horsetail, fireweed feathermosses	green alder, low-bush cranberry, prickly rose wild sarsaparilla, twinflower, tall mertensia, dewberry, palmate-leaved coltsfoot, fireweed feathermosses
Age	
variable 32-99 years	matures 85-90 years
Parent Materials	
morainal, glaciofluvial	glacial till

* The dominance of low forbs suggests a denser overstory with a larger coniferous component than the Special Lakeland forage type.

The main canopy is fairly dense, as previously stated, averaging 68.8% cover with a mean height of 22.3 m and an average age of 91.5 years.

This forage type occurs on a wide range of soils, including Orthic Gray Luvisols, Brunisolic Gray Luvisols, Orthic Regosols, Orthic Gleysols, and Gleyed Eutric Brunisols.

As the climax type of the ecoregion, White Spruce/Feathermoss type is expected to be present on mesic sites and to be self-perpetuating. This type can be found on sites varying from well drained to imperfectly drained, however, the stands were not of sufficient age to indicate whether they would maintain themselves beyond the present generation of white spruce.

This forage type has been identified for many study areas throughout the mixedwood ecoregion (Table 11, Appendix B). A *Picea-glauca-Pleurozium* (White Spruce/Schreber's moss) type has been identified for the mixedwood section of Saskatchewan. Both types appear to vary a little with the dryness of the site. As the site becomes drier, the low forb layer is more prevalent; an imperfectly drained site has almost entirely moss in the understory (Kabzems et al, 1976). A comparative summary of the two types appears in Table 11.

White Spruce Discussion. The White Spruce/Feathermoss type is the climax type for the area. White spruce is very shade tolerant and will regenerate under its own canopy. The older trees, which fall and rot, even-

Table 11

WHITE SPRUCE/FEATHERMOSS TYPE

Special Lakeland Forage Type	Mixedwood-Saskatchewan Type (Pages 56 and 74)
Association	
White Spruce/Feathermoss	*Picea glauca/Populus-Cornus*
Major Species	
white spruce stair-step moss, knight's plume moss, Schreber's moss	white spruce Schreber's moss, stair-step moss
Minor Species	
low-bush cranberry bishop's-cap, bunchberry, twinflower, dewberry, rattlesnake plantain	common horsetail, twinflower, bunchberry, bishop's-cap, dewberry, palmate-leaved coltsfoot, vine-leaved coltsfoot, fern moss, *Dicranum polysetum, Dicranum undulatum*
Age	
91.5 years	matures in 120-130 years
Parent Materials	
glaciofluvial, morainal	glacial till, glaciolacustrine, fluvial lacustrine deposits

tually provide a seedbed for the germinating seedlings (a moss layer is not very conductive to seedling germination). There were no plots in either type containing trees of sufficient age to determine whether the White Spruce/Feathermoss or the White Spruce-Aspen/Cranberry/Sarsaparilla forage types are self perpetuating. Presumably, the White Spruce-Aspen/Cranberry/Sarsaparilla type will eventually lose the aspen component while retaining the low shrub and tall forb layers. The lower canopy density of the White Spruce-Aspen/Cranberry/Sarsaparilla type supports a greater average number of species per plot and a taller understory. An increase in canopy density will reduce the shrub layer and promote the low forb and moss layers that characterize the White Spruce/Feathermoss forage type (Rowe, 1956).

3.2.4 Balsam Poplar Forage Type

Balsam Poplar generally occupies the same sites as white spruce (Moss, 1955). It is a longer lived species than aspen due to its reduced susceptibility to pathogens (Ekistic, 1976) and is often found within the study area in combination with mature white spruce. There is only one balsam poplar type in the Special Lakeland study area. It is restricted to the Sand River Valley bottom.

Balsam Poplar/Willow/Reed Grass. The Balsam Poplar/Willow/Reed Grass forage type (Pbl) is a unique community characterized by an overstory of clumps of mature balsam poplar. There are scattered patches of white spruce that may exceed the balsam poplar in height. The understory is dominated by a layer of tall willow over a shorter layer of dogwood.

There are also minor amounts of wild black currant and snowberry. The herbaceous layer (forbs plus grasses) is composed dominantly of marsh reed grass with minor amounts of fowl bluegrass, various sedges, star-flowered Solomon's seal, common horsetail, veiny meadow rue, wild mint, globe-flower, wild vetch, wild strawberry, dewberry, yellow avens, and soapwort (Environment and Vegetation tables, Appendix B).

The main canopy is very sparse, averaging only 27.5% cover. It is approximately 100 years in age (Phase III forest cover value) and 19.5 m in height.

This forage type is restricted to Orthic Regosolic soils. The frequent deposition of fluvial material on these sites has created a botanically unique area with high productivity. The biomass values are therefore fairly high, averaging 196 kg/ha for forbs, 57 kg/ha for grasses and 64.1 kg/ha for palatable browse.

Succession to white spruce appears to be inhibited due to the regular disturbance of these sites by river activity. Otherwise, a white spruce forage type similar to the *Picea glauca-Equisetum* (White Spruce/ Horsetail) type identified for the mixedwood region of Saskatchewan by (Kabzems et al, 1976) would be expected to occupy these areas. The mature white spruce scattered throughout the Sand River Valley are a potential seed source.

3.2.5 Black Spruce Forage Type

The dominance of black spruce in the overstory with a sphagnum moss component in the understory marks the transition from dryland forage types, pine, aspen, white spruce, and balsam poplar, to wetland forage types, black spruce, tamarack, and brush. Wetlands have been separated into bogs, fens, swamps, shrub carrs and meadows (Runka and Lewis, 1981). Black spruce with sphagnum moss as the principal ground cover is characteristic of bog-type vegetation. Bogs are defined as "wetlands comprised of poorly to moderately decomposed sphagnum-derived peats" and have been identified by their acidic, mineral-poor organic layers (Runka and Lewis, 1981).

Black spruce bogs are usually associated with the drier phase of wetland areas. The poor growth exhibited by the trees on these sites is characterized by their club-like tops and diminished size. Although black spruce produces its best growth on mesic sites, its slow growth and shallow root system make it a poor competitor on these sites. Black spruce is also capable of establishing itself on xeric sites if fire is excluded although its presence in the overstory is usually identified with wetlands in the study area. Labrador tea and sphagnum moss are generally found in association with black spruce in these areas. Several other moss species may be present in conjunction with sphagnum although these are usually associated with wetter, less acidic environments. Usually *Tomenthypnum nitens*, *Aulacomnium palustre*, *Drepanocladus* species and *Plagiomnium* species are confined to the wet hollows generated by the

sphagnum moss.

Black spruce is the tree species best adapted to co-existence with sphagnum moss. It is fairly tolerant of the acidity, poor drainage, and ombrotrophic conditions that characterize sphagnum moss accumulation and prefers the lack of competition and the protection from fire offered by such sites. The moist bog environment acts as a barrier to fire and shields the black spruce trees, which are readily killed by both surface and crown fires. When a black spruce bog burns repeatedly, which may happen during dry weather where the accumulation of peat has elevated the surface above the water table, an open Labrador tea moor devoid of trees may result (Moss, 1955).

There is only one black spruce bog forage type in the study area, Black Spruce/Labrador Tea/Moss.

Black Spruce/Labrador Tea/Moss. The Black Spruce/Labrador Tea/Moss forage type (Sbl) is characterized by a short dense overstory comprised of dominantly black spruce with very minor amounts of tamarack. The understory consists of a prominent low shrub layer composed mainly of Labrador tea and lesser amounts of various willow species. The forb and grass layers are sparse and include no single dominant species although several minor species, small bog cranberry, three-leaved Solomon's-seal, and bog cranberry, do occur. The moss layer is characterized by high mean cover value, 89.6% and the presence of hollows and hummocks in the microtopography. The hummocks are generated by sphagnum moss, particularly

Sphagnum fuscum which is the most xerophilic of the sphagnum mosses. Reindeer lichen often occurs on the tops of these mounds where the microsite is very dry. *Aulacomnium palustre* is also a dominant moss, occupying the wet hollows between the sphagnum hummocks. Small amounts of several *Dicranum* species are also present (Environment and Vegetation tables, Appendix B).

The main canopy averages only 8.6 m in height and may be less than 5.0 m on many sites, placing most of the tree cover for these plots in the tall shrub stratum. The ages of many stands could not be determined due to the smaller diameters of the trees.

This type occupies hygric to subhygric sites and occurs predominantly on Gleysolic and Organic soils. These soil types include Orthic Gleysols, Rego Gleysols, Terric Humisols, Terric Mesisols, Terric Fibrisols and Fibric Mesisols. The poor growth of black spruce in these areas can be attributed to a combination of the poor drainage and the acidic and ombrotrophic conditions associated with the soils at these sites. Succession to white spruce is inhibited by these site conditions and it is expected, therefore, that the Black Spruce/Labrador Tea/Moss type will form an edaphic climax on these poorly-drained areas.

The biomass values reflect the low productivity of these sites. Biomass for forbs and grasses averaged 48 kg/ha and 52 kg/ha respectively. Labrador tea, a relatively unpalatable species, so totally dominates the shrub layer that clipping for browse was deemed unnecessary.

This Lakeland type and its counterpart for the mixedwood section of Saskatchewan are summarized in Table 12.

3.2.6 Tamarack Forage Types

Tamarack prefers more eutrophic conditions than black spruce and generally occupies sites that are intermediate in wetness between the black spruce bog type and the brush fen and swamp types. Consequently, using Runka and Lewis' classification for wetlands, tamarack types may be either bog types or fen types depending on the understory vegetation. Fens are described as "wetlands comprised of in situ accumulations of well to poorly decomposed non-sphagnic peats". These areas are characterized by the influx of groundwater and runoff from mineral-rich uplands. Therefore, fens are less acidic and more mineral-rich than bogs (Runka and Lewis, 1981).

Tamarack is usually the first tree species to establish itself in wetlands. It usually appears after the peat layers have accumulated sufficiently that open water is confined to small pockets. Although it produces its best growth on well drained, mesic sites, tamarack is generally confined to subhydric and hydric areas due to its lack of competitive ability. Once established, however, the trees may exceed 150 years in age.

Tamarack is very intolerant of shade and is therefore a characteristic species of open, wet fens. It does not perpetuate itself well even under these conditions and is usually transitional to black spruce.

Table 12

BLACK SPRUCE/LABRADOR TEA/MOSS TYPE

Special Lakeland forage type	Mixedwood-Saskatchewan Type (Page 99)
Association	
Black Spruce/Labrador Tea/Moss	*Picea mariana-Ledum/Sphagnum*
Major Species	
black spruce	black spruce
Labrador tea, reindeer lichen	Labrador tea
Aulacomnium palustre	sphagnum moss
Minor Species	
tamarack	
willow	
small bog cranberry, three-leaved	bog cranberry, three-leaved
Solomon's-seal, bog cranberry	Solomon's-seal, northern comandra, round-leaved sundew, cloudberry, bishop's-cap, gold-thread, creeping snowberry,
Schreber's moss, *Dicranum* spp.	Schreber's moss, stair-step moss, hair cap moss, reindeer lichen, *Tomenthypnum nitens*
Soils	
gleysolic, organic	gleysolic, organic

There are two tamarack forage types that occur within the study area, the Tamarack-Black Spruce/Sedge/Moss type and the Tamarack/Birch/Sedge/Moss type.

Tamarack-Black Spruce/Sedge/Moss. The Tamarack-Black Spruce/Sedge/Moss forage type (L1) is present in small areas located primarily in the extreme western and eastern portions of the study area. It is characterized by the occurrence of tamarack and lesser amounts of black spruce in the overstory and the shrub layer. Excluding short trees, only Labrador tea is present in significant amounts in the shrub layer. The forb stratum, which is also low in percent cover, is fairly diverse and contains no dominant species. The minor species include small bog cranberry, three-leaved Solomon's-seal, bedstraw, marsh marigold and chickweed. The grass layer is prominent and is composed mainly of sedges, particularly water sedge, with small amounts of marsh reed grass.

The moss layer is very high in cover, averaging 97.0%. It is dominated by two sphagnum mosses, *Sphagnum fuscum* and *S. warnstorfii* and *Tomenthypnum nitens*. *Aulacomnium palustre* and *Plagiomnium ellipticum* occur in small amounts in the hollows created by the sphagnum moss hummocks (Environment and Vegetation tables, Appendix B).

The height of the main canopy ranges from less than 5.0 to 16 m. The density of the overstory is approximately 40%, although a significant portion of this cover is contributed by trees in the shrub layer.

This forage type which occurs primarily on Fibric Mesisols,

represents an intermediate stage between a fen type and a bog type. The presence of large amounts of sphagnum moss and significant amounts of black spruce indicate that the Tamarack-Black Spruce/Sedge/Moss type will probably succeed to black spruce.

There is a similar type, *Larix-Carex/Sphagnum* (Tamarack/Sedge/Sphagnum) described for the mixedwood section of Saskatchewan (Kabzems et al, 1976). A summary of the two types appears in Table 13.

Tamarack/Birch/Sedge/Moss. The Tamarack/Birch/Sedge/Moss forage type (L2) occupies significant areas in the central and eastern portions of the study area. It is characterized by an overstory dominated by tamarack and very small amounts of black spruce. The shrub stratum is mainly comprised of swamp birch with lesser amounts of dwarf birch and minor occurrences of black spruce and willow (predominantly glaucous bog willow). The forb layer,which has no single dominant species, includes a few minor species of consistent presence, namely swamp horsetail, marsh marigold, and three-leaved Solomon's seal. The grass layer, which is very prominent, is composed of different sedges. The moss layer is comprised primarily of the characteristic fen species, *Tomenthypnum nitens* and *Aulacomnium palustre*. Small amounts of sphagnum moss are also present (Environment and Vegetation tables, Appendix B).

The main canopy averages approximately 20% cover and less than 11 m in height. It was not possible to determine tree ages in all of the plots as the diameters of the trees were very small. Where measure-

Table 13

TAMARACK-BLACK SPRUCE/SEDGE/MOSS TYPE

Special Lakeland forage type	Mixedwood-Saskatchewan Type (Page 100
Association	
Tamarack-Black Spruce/Sedge/ Moss	*Larix-Carex/Sphagnum*
Major Species	
tamarack, black spruce sedge (water sedge) sphagnum moss, *Tomenthynum nitens*	tamarack sedge (water sedge) sphagnum moss
Minor Species	
Labrador tea marsh marigold, chickweed, bedstraw, three-leaved Solomon's-seal marsh reed grass	bullrush, cottongrass, small floating manna grass
Soils	
organic	organic

ments could be taken the dominant trees exceeded 50 years in age. The lack of growth on these sites is the result of the poor drainage. This forage type occurs on Humic Mesisols, Typic Mesisols, and Typic Humisols.

The wetter, more eutrophic conditions associated with the sites occupied by tamarack produce an understory that is characteristic of fen-type vegetation. As succession to black spruce proceeds, in conjunction with peat accumulation, the understory will more closely reflect bog conditions.

The biomass values are high for forbs and grasses, averaging 145 kg/ha and 232 kg/ha respectively. Palatable browse averaged fairly low, at 14.6 kg/ha, due to the low height of the birch layer.

This Lakeland forage type compares favorably with the *Larix-Carex* (Tamarack/Sedge) type identified for the mixedwood section of Saskatchewan. A summary of these two types appears in Table 14.

Tamarack Discussion. The two tamarack forage types represent two phases in the progression of fens to bogs. The Tamarack/Birch/Sedge/Moss forage type is characteristic of the initial stages of treed fen after tamarack has invaded a brush-dominated wetland. The Tamarack-Black Spruce/Sedge/Moss type shows evidence of an increasing similarity to black spruce bog in its species composition. The non-sphagnic mosses, *Tomenthypnum nitens*, *Aulacomnium palustre*, and *Drepanocladus* species, which are very prominent in the fen type, Tamarack/Birch/Sedge/Moss, have declined in dominance relative to the sphagnum mosses. This trend to a drier, more acidic,

Table 14

TAMARACK/BIRCH/SEDGE/MOSS TYPE

Special Lakeland forage type	Mixedwood-Saskatchewan Type (Page 102)
Association	
Tamarack/Birch/Sedge/Moss	*Larix-Carex*
Major Species	
tamarack swamp birch sedge *Tomenthypnum nitens, Aulacomnium palustre*	tamarack swamp birch, dwarf birch sedge (water sedge), northern reed grass
Minor Species	
black spruce willow, dwarf birch, swamp birch, horsetail, marsh marigold, three-leaved Solomon's seal, sphagnum spp.	
Soils	
organic	organic

ombrotrophic habitat has been accompanied by a loss in the tamarack cover and a decline in amount of dwarf and swamp birch. Although tamarack benefits from the better drainage that results from sphagnum peat accumulation, it cannot tolerate the lack of nutrients and the acidity. Black spruce and Labrador tea have begun to emerge as consistent minor species as sphagnum peat layers are generated in the areas occupied by the Tamarack-Black Spruce/Sedge/Moss type.

3.2.7 Brush Forage Types

The brush types which are characterized by less than 10% tree cover, occupy large, very wet fen-type areas primarily in the central and eastern portions of the study area.

There are two brush types identified for the Lakeland area: the Birch/Sedge/Moss forage type and the Willow/Sedge forage type.

Birch/Sedge/Moss. The Birch/Sedge/Moss forage type (B1) often occurs as broad treeless moors which may or may not be ringed by black spruce or tamarack stands. Dwarf and swamp birch dominate the low shrub layer with dwarf birch being the most prevalent. Glaucous bog willow is also present. The forb layer is sparse and lacks diversity with buckbean, bedstraw and marsh marigold being the only consistent species. The grass layer, which is quite prominent, is dominated by sedges, *Carex prairea* in particular. The moss layer covers 92% of the surface on average and is mainly composed of *Drepanocladus vernicosus* and *Tomenthypnum nitens* with lesser amounts of *Aulacomnium palustre* (Environment and Vegetation

tables, Appendix B).

This forage type occurs on Typic Humisols, Typic Mesisols, Humic Mesisols and Mesic Humisols. These organic soils appear to generally support fen-type vegetation. The understory species reflect the wetness of the sites occupied by this type - *Drepanocladus* species, marsh marigold and buckbean are all typical species of a subhydric habitat. There are usually fewer species per plot than the wetland types previously discussed.

Succession is ultimately to black spruce with a sphagnum moss understory although the transition will be slow. Sphagnum moss has not yet appeared in the moss layer and the tree cover is under 10%.

Biomass values are not exceptionally high, considering that there is no overstory to restrict the light reaching the forbs, grasses and shrubs. The average biomass values are 107 kg/ha for forbs, 184 kg/ha for grasses and 30.9 kg/ha for palatable browse. Palatable browse values would be higher if the birch layer were taller than 0.5 m.

A comparable type for the mixedwood section of Saskatchewan was not identified although there was reference to dwarf birch as a predecessor of tamarack on wetlands (Kabzems et al, 1976).

Willow/Sedge. The Willow/Sedge forage type (B2) is generally devoid of a tree layer. The upper strata are comprised of tall and medium willows, including hoary willow, flat-leaved willow and glaucous bog willow.

Marsh marigold is the only consistent forb species. The grass layer is very prominent and contains a number of sedge species. The moss layer is fairly low in cover and contains only one consistent minor species, *Aulacomnium palustre* (Environment and Vegetation tables, Appendix B).

This forage type occurs on hydric sites with Mesic Humisols, Typic Mesisols, Typic Humisols and Mesic Humisols. These sites are often flooded for at least part of the year and only a restricted number of species can tolerate these conditions.

Succession may be to black spruce eventually although the disturbance created by water flowing through these areas and depositing silt may retard the formation of mosses and initial accumulation of peat.

The biomass values are very high for grasses and palatable browse as these are eutrophic, productive sites. The mean biomass values for forbs, grasses and browse are 46 kg/ha, 1743 kg/ha, and 128.9 kg/ha respectively.

This forage type has no counterpart in the mixedwood section of Saskatchewan although similar sedges and aquatic plants have been identified as primary invaders of wetlands.

Brush Discussion. The two brush types, Birch/Sedge/Moss and Willow/Sedge, constitute two possible stages of primary vegetation cover on extremely wet sites. Both of these types are identified by a sparse or non-exis-

tent tree cover, a heavy occurrence of sedges, and a predominance of birch and/or willow in the shrub layer.

The Willow/Sedge forage type is characteristic of regularly inundated areas adjacent to creeks. In some locations beaver activity and road construction have dammed the nearby waterways and prolonged the period of flooding. These sites may actually resemble a swamp as opposed to a young fen. Swamps are defined as "tree or tall shrub-dominated wetlands that are characterized by periodic flooding and nearly premanent subsurface water flow through various mixtures of mineral sediments and organic materials." (Runka and Lewis, 1981).

3.2.8 Other Forage Types

Cultivated Land. The cultivated farmland (D1), which includes cropland, improved pasture, and very small areas of unimproved range, is confined to the Sand River valley bottoms.

Recent Burn. Recently burned areas (D2) (less than five years ago) are found mainly on the banks of the Sand River valley north of the most northerly grazing lease in the study area. At the present time, they are covered in young scrubby pine, and are expected to ultimately revert to the complex type Pine/Alder/Blueberry & Pine/Alder/Twinflower/Feathermoss.

Older Burn. An area of older burn (D3) which resulted from fire five to 10 years ago occurs in the north-central portion of the study area. The presence of large amounts of young white spruce indicates that this area

will probably become the White Spruce-Aspen/Cranberry/Sarsaparilla forage type with time.

3.3 Comparison of Mixedwood Types

The relationship between the forage types established for the Special Lakeland area and the types defined by other reports within the mixedwood ecoregion is outlined in Tables 15 and 16. In many cases, there was a combination of several Lakeland types which were equivalent to a single type in another report. These differences were probably due to the relatively large scale that the forage study was conducted at.

3.4 Succession and Disturbance

Succession, as it relates to each forage type, has been discussed. There are also definite trends between the forage types in the study area as indicated in Figures 3 and 4. To facilitate an explanation of the successional relationships between the types and the effects of different disturbance factors, the discussion has been split into a dryland section, consisting of jack pine, aspen, white spruce and balsam poplar, and a wetland section including black spruce, tamarack and brush.

3.4.1 Dryland Succession

Succession within and between the dryland types is controlled by several disturbance factors. Fire and soils are the dominant influences with a lesser impact from logging, oil and gas activity and road construction.

Table 15

A COMPARISON OF DRYLAND TYPES WITHIN THE MIXEDWOOD ECOREGION

Special Lakeland Forage Type 1982	Cold Lake Forage Type 1979-80	Mixedwood Section Saskatchewan 1976	Cold Lake Esso Resources 1979	Syncrude Lease 17 1977	Vegetation of Alberta-Moss 1955
P1 Pine-Black Spruce/Feather-moss		*Pinus/Picea mariana-Pleurozium*	Black Spruce/ Lichen	*Black Spruce-Feathermoss	*Black Spruce-Feathermoss
P2 Pine/Bearberry/ Lichen	5. Jack Pine	*Pinus-Cladonia/ Arctostaphylos*	Pine/Bog Cranberry		Pine association-pine-heath fasciation
P3 Pine/Alder/Blue-berry & Pine/Alder/ Twinflower/Feather-moss		*Pinus-Vaccinium vitis-idaea/ Pleurozium*			Pine association-pine-feather moss fasciation
A1 Aspen/Alder/Twin-flower & Aspen/Willow Sarsaparilla	8. Aspen	*Populus-Corylus*	Aspen/Fireweed	Aspen-White Spruce	Aspen consociation
A2 Aspen-Poplar/ Cranberry					
A3 Aspen/Cranberry/ Sarsaparilla	7. Aspen	*Populus-Aralia/ Linnaea*			
Sw1 White Spruce-Aspen/Cranberry/ Sarsaparilla	9. White Spruce	*Picea glauca/ Populus*		White Spruce-Aspen	White Spruce association-shrub-herb fasciation
Sw2 White Spruce/ Feathermoss		*Picea glauca-Pleurozium*	White Spruce/ Feathermoss		White Spruce association-feathermoss
Pb1 Balsam Poplar/ Willow/Reed Grass				Balsam Poplar-Alder	*Balsam Poplar consociation

*type bears similarity to the Special Lakeland forage type but there is insufficient information to be certain

Table 16

A COMPARISON OF WETLAND TYPES WITHIN THE MIXEDWOOD ECOREGION

Special Lakeland Forage Type 1982	Cold Lake Forage Type 1979/80	Mixedwood Section Saskatchewan 1976	Cold Lake Esso Resources 1979	Syncrude Lease 17 1977	Vegetation of Alberta-Moss 1955
Sb1 Black Spruce/Labrador Tea/Moss	6. Black Spruce	*Picea mariana-Ledum/Sphagnum*	Black Spruce/ Peat moss	Black Spruce-Labrador Tea	Black Spruce-Bog Moss
L1 Tamarack-Black Spruce/ Sedge/Moss		*Larix-Carex/ Sphagnum*			
L2 Tamarack/ Birch/Sedge/ Moss		*Larix-Carex*	Sedge Fen		*Drepanocladus - Carex bog-Larix laricina association*
B1 Birch/ Sedge/Moss	*2. Open Muskeg				*Drepanocladus - Carex bog - bog birch stage*
B2 Willow/ Sedge	*1. Open bog			Sedge-Reed Grass	* Marsh

*type bears similarity to the Special Lakeland forage type but there is insufficient information to be certain.

The initial colonization of a site is generally determined by the soils and the vegetation that existed in the area before disturbance occurred. Jack pine, as a pure stand in combination with black spruce, occupies the most xeric sites. If black spruce is present, as in the Pine-Black Spruce/Feathermoss type (P1), a pure stand of black spruce will eventually succeed where fire has been suppressed. Black spruce is a longer-lived species than jack pine although it does not tolerate burning particularly well. The Pine-Black Spruce/Feathermoss type will revert back to a pine or pine-black spruce stand in the event of fire. Pure stands of jack pine on dry sites isolated from invasion by black spruce, such as the Pine/Bearberry/Lichen type (P2), are generally self-perpetuating. These sites are very fire-prone and unfavorable to the growth of white spruce due to their aridity.

On the more mesic sites where the mixed pine-aspen, aspen and white spruce-aspen types occur, succession is to white spruce. Although white spruce is the climax tree species on mesic sites in the dry mixed-wood subregion, its presence is restricted to portions of the central section of the study area. Fire and the available seed sources appear to be the major factors governing succession to the climax stand.

The occurrence of fire affects the regeneration of white spruce, aspen and jack pine by its frequency and severity. Repeated light burning stimulates suckering in aspen and the growth of perennials and results in dense, pure aspen types such as the Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla complex type (A1) and the Aspen/Cranberry/Sarsaparilla

type (A3). Intense fires, however, will weaken and destroy the aspen suckers and clean off the accumulated duff from the forest floor. In so doing, they create a better environment for the germination of white spruce seedlings and the result is an even-aged white spruce-aspen mixture, such as the White Spruce/Cranberry/Sarsaparilla forage type (Sw1), if a seed source for white spruce is available (Rowe, 1953 from Moss, 1955). Repeated intense fires decimate both aspen and white spruce. If a seed source for jack pine is present, succession may be through a pine or pine-aspen mixed stand such as the complex type, Pine/Alder/Blueberry & Pine/Alder Twinflower/Feathermoss (P3). As there is young white spruce present and an emerging feathermoss layer, it is assumed that a climatic climax type, White Spruce/Feathermoss (Sw2), will eventually be attained in the absence of fire.

Young spruce is rarely found more than 100 m from the parent tree and, consequently, reinvasion of white spruce into aspen-dominated areas is quite slow (Moss, 1955). The dense young aspen type, Aspen/Cranberry/Sarsaparilla, tends to succeed to an older, more open aspen type, Aspen-Poplar/Cranberry (A2), before white spruce regenerates. Where white spruce regeneration is occurring, as with the Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla complex type (A1), succession will be to a white spruce stand with a low shrub understory, such as low-bush cranberry, and/or a prominent tall forb layer, such as wild sarsaparilla. The White Spruce-Aspen/Cranberry/Sarsaparilla type is an example of the early stages of such a climax stand.

In general, as the succession from pine or aspen to white spruce proceeds and the proportion of white spruce increases in the type, there is a corresponding change in the understory. The shrub, forb, grass, and moss layers lose their similarity to the aspen or pine types and take on the characteristics of the white spruce types. Tall shrubs are replaced by low shrubs and tall forbs. If the white spruce overstory becomes sufficiently dense, low shrubs and tall forbs may be replaced by low forbs and mosses (Howe, 1956). There is also a corresponding drop in the biomass values and eventually in species diversity (Environment and Vegetation tables, Appendix B).

Clear cutting and clearing for oil and gas activity have had much the same effect as light fire. Road construction does not appear to have had much impact.

The Balsam Poplar/Willow/Reed Grass forage type (Pbl) is subject to a form of disturbance that is unique to this type. Succession appears to be governed by the activity of the Sand River. Although there are clumps of mature white spruce present, there was very little white spruce regeneration noted. The frequent disposition of silt on the floodplains occupied by this type has prevented succession to a white spruce/horsetail climax type that would usually be found on these fluvial sites. The moist nature of these areas has inhibited fire; however, there has been clearing for crop and grazing land.

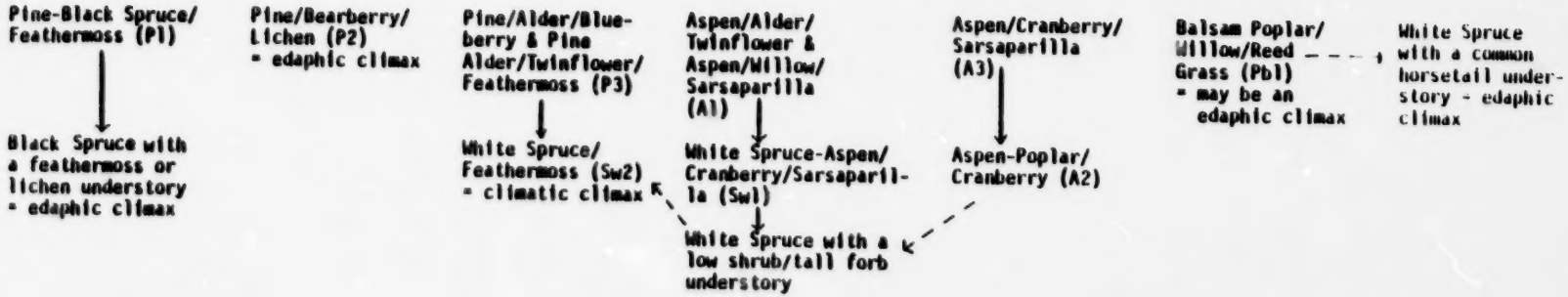

Pine-Black Spruce/ Feathermoss (P1)
Black Spruce with a feathermoss or lichen understory - edaphic climax
Pine/Bearberry/ Lichen (P2) - edaphic climax
Pine/Alder/Blueberry & Pine Alder/Twinflower/ Feathermoss (P3)
White Spruce/ Feathermoss (Sw2) - climatic climax
Aspen/Alder/ Twinflower & Aspen/Willow/ Sarsaparilla (A1)
White Spruce-Aspen/ Cranberry/Sarsaparilla (Sw1)
White Spruce with a low shrub/tall forb understory
Aspen/Cranberry/ Sarsaparilla (A3)
Aspen-Poplar/ Cranberry (A2)
Balsam Poplar/ Willow/Reed Grass (Pb1) - may be an edaphic climax
White Spruce with a common horsetail understory - edaphic climax

Figure 3. Dryland Succession

3.4.2 Wetland Succession

Succession in the wetland portions of the study area is governed less by man-related factors and fire and more by the alteration of site conditions by the vegetation itself.

Sedges are usually the first species to invade a water-filled depressional area, followed by the establishment of willows in clumps (Kabzems et al, 1976). This swamp type community is represented by the Willow/Sedge (B2) forage type. At this point; the *Drepanocladus* mosses may range in coverage from almost none to large mats (Environment and Vegetation tables, Appendix B). These moss mats may develop to a substantial size and contribute significantly to the accumulation of peat if the regular deposition of silt is not occurring. Otherwise, the Willow/Sedge type may form an edaphic climax.

Where peat accumulation has been substantial, the site conditions become more favorable to the growth of other species. The invasion of dwarf and swamp birch, *Tomenthypnum nitens* moss and *Aulacomnium palustre* moss mark the transition to a fen-type wetland (Environment and Vegetation tables, Appendix B). The Birch/Sedge/Moss (B1) forage type represents the initial stages of a fen. At this stage the peat layers have built up sufficiently that open water is uncommon. The average number of species is higher than the swamp type. Sedges still constitute a dominant element in the fen-type of the wetland. The moss layer is continuous and the *Drepanocladus* mosses are confined to the wetter microsites (Environment and Vegetation tables, Appendix B).

Ultimately, sufficient organic build up will create sites conducive to the establishment of tamarack and a variety of understory species and a type such as the Tamarack/Birch/Sedge/Moss type (L2) will result. Sphagnum moss and black spruce then begin to appear, particularly at the edges of large fens where drier, more stagnant conditions prevail. This marks the transition from the fen forage types to the bog types. The Tamarack-Black Spruce/Sedge/Moss type (L1), which is a transitional type in the study area, is characterized by the presence of elements of the Tamarack/Birch/Sedge/Moss fen type and the Black Spruce/Labrador Tea/Moss bog type (Sbl). The average number of species per plot does not change significantly during the fen to bog transition (Environment and Vegetation tables, Appendix B). Black spruce bog constitutes the wetland edaphic climax for the area.

Wetland areas are not generally logged although there was some evidence of cutting in a few tamarack stands. Fire, oil and gas activity and road construction have had some effect on succession in the area. Fire occurrence has been restricted due to the hydric nature of these areas. Black spruce and tamarack are not well adapted to fire and consequently the recovery of the wetland types from burning is slow. As previously mentioned, repeated burning of black spruce bogs may result in treeless moors of Labrador tea. Clearing for seismic lines generally results in the wetland reverting to an earlier, more hydric stage in succession. Where road construction has altered the drainage, dying black spruce have been replaced by tamarack regeneration.

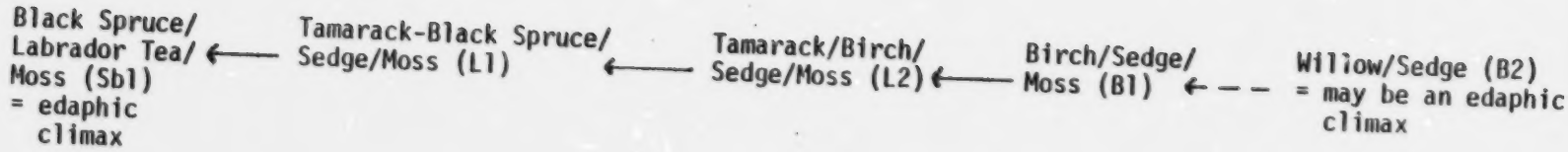


Figure 4. Wetland Succession

4. RESOURCE INVENTORY INTEGRATION

4.1 Integrated System I

Integrated System I occupies the western portion of the study area. It corresponds to the boundaries defined by Geomorphic System I which is characterized by irregular knob and kettle topography. The landscape seldom varies more than 35 m in elevation with dry upland knobs and associated slopes of less than 25% predominating. Depressional interknob areas occupy a significant portion of the area.

The vegetation of this system is characterized by expanses of dense young aspen forest with pockets of older, more open aspen stands. The middle and upper slopes of the well drained till ridges are occupied by the Aspen/Cranberry/Sarsaparilla forage type (A3). This type is characterized by a low shrub/tall forb-dominated understory. Where the soils are imperfectly drained and/or fire has been excluded, an older version of this type, the Aspen-Poplar/Cranberry type (A2) is found. This forage type is a more advanced successional stage of the Aspen/Cranberry/Sarsaparilla type. The understory is more prominent with a greater diversity of species than the Aspen/Cranberry/Sarsaparilla type.

The predominance of Orthic Gray Luvisols, in conjunction with mesic conditions, and the prevalence of fire, has resulted in the occurrence of aspen types. Repeated light fires have eliminated climax species such as white spruce. If soil conditions were more xeric (coarse textured and rapidly drained), it is possible that frequent intense burning would have resulted in the presence of other fire-adapted species such as

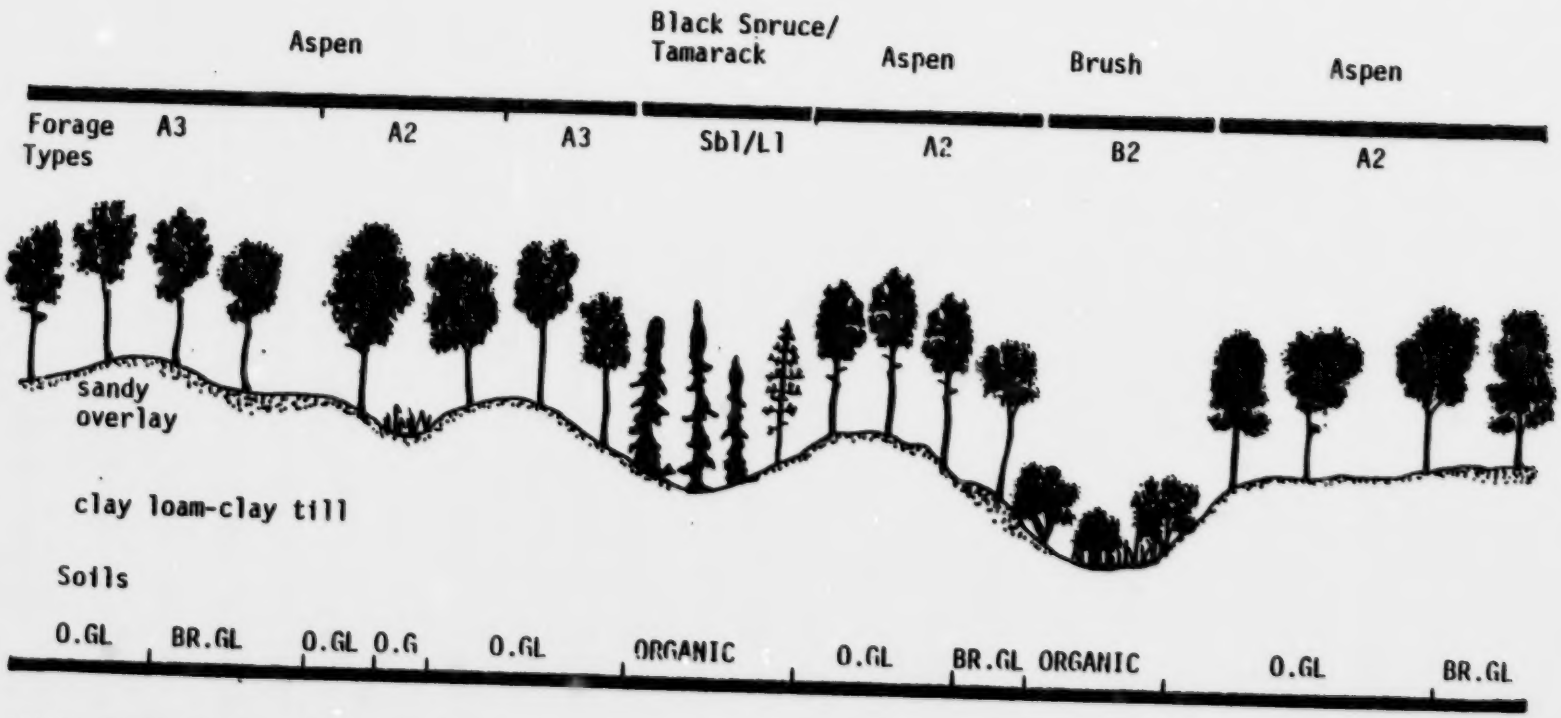
jack pine. Although there is variation in the thickness of the sandy veneer overlying the area, it does not generally affect the vegetation or succession.

The depressional interknob areas are occupied by the bog forage types, Black Spruce/Labrador Tea/Moss (Sb1) and Tamarack-Black Spruce/Sedge/Moss (L1). The Tamarack-Black Spruce/Sedge/Moss type succeeds to the edaphic climax, Black Spruce/Labrador Tea/Moss. The bog types, in which sphagnum moss forms a principal component, reflect and perpetuate the acidic, ombrotrophic nature of the soils associated with these sites. These Organic soils include dominantly Fibric Mesisols, Humic Mesisols, Mesic Humisols, Terric Mesisols and Terric Fibrisols. There are also minor occurrences of nutrient-rich, hydric seepage areas, which are inhabited by the Willow/Sedge type (B2), throughout this system.

Land use activities in this area are currently limited to seismic activity, hunting and recreation. Where the system extends west beyond the study area, there are tracts of unimproved grazing land. In addition, there are also large areas of cleared land in conjunction with homesteads.

A conceptual relationship between topography, soils, and vegetation in Integrated System I is depicted in Figure 5.

Figure 5. A Schematic Cross Section of Integrated System I



*This cross section does not represent a particular location within the study area nor does it reflect specific proportions of soils or forage types.

4.2 Integrated System II

Integrated System II represents a morainal area in the central part of the study area as defined by the boundaries of Geomorphic System II. The undulating landscape is more subdued than System I with long slopes of generally less than 15% gradient. Much of the area is overlain by a sandy glacio-fluvial veneer varying from five to 40 cm in thickness. Elevations vary approximately 100 m.

The vegetation is characterized by extensive stands of old aspen in the west section and white spruce and aspen in the east section. These stands include three forage types, Aspen-Poplar/Cranberry (A2), White Spruce-Aspen/Cranberry/Sarsaparilla (Sw1), and White Spruce/Feathermoss (Sw2). The occurrence of these different types is more closely related to the fire history of the area than differences in the soils. The presence of the Aspen-Poplar/Cranberry type is largely due to repeated light burning in the past. Where infrequent intense fire has occurred the two white spruce types predominate. A dense overstory of white spruce usually generates a feathermoss ground cover while an open mixed white spruce-aspen stand usually occurs in conjunction with a low shrub/tall forb understory. These types occupy a range of sites from well to imperfectly drained with a variety of soils, including Brunisolic Gray Luvisols, Orthic Gray Luvisols, Gleyed Gray Luvisols and Gleyed Eutric Brunisols. The relationship between these forage types and the soils on which they occur is therefore a general one, in the sense that xeric and

hydric sites are excluded. Further study, particularly in adjacent areas, may clarify successional and soil relationships for these types.

The differences in the thickness of the sandy overlay, and hence soils and drainage, are more closely reflected by the minor types present in the system. Where the sandy veneer is thinnest and Orthic Gray Luvisols dominate, recent repeated light fires have resulted in the presence of the Aspen/Cranberry/Sarsaparilla type (A3). As the sandy overlay thickens and Brunisolic Gray Luvisols and Eluviated Eutric Brunisols are more prevalent, the occurrence of repeated light fires has produced stands of the complex aspen type, Aspen/Alder/Twinflower and Aspen/Willow/Sarsaparilla (A1). More intense, repeated burning on these soils accounts for the presence of the mixed jack pine-aspen type, Pine/Alder/Blueberry & Pine/Alder/Twinflower/Feathermoss (P3). On the most arid sites where the sandy overlay is thickest and where fire has been most severe and most frequent, there exists only sparse pure pine stands with very little or no understory except lichens and low ericaceous shrubs. The Pine/Bearberry/Lichen forage type (P2) represents the vegetation generally associated with these sites. Occasionally, where a seed source for black spruce is present, the Pine-Black Spruce/Labrador Tea/Moss type (P1) is found, on either Brunisolic Gray Luvisols or Eluviated Eutric Brunisols. The understory vegetation reflects the relative dryness or wetness of the site by the proportion of lichens versus feathermoss.

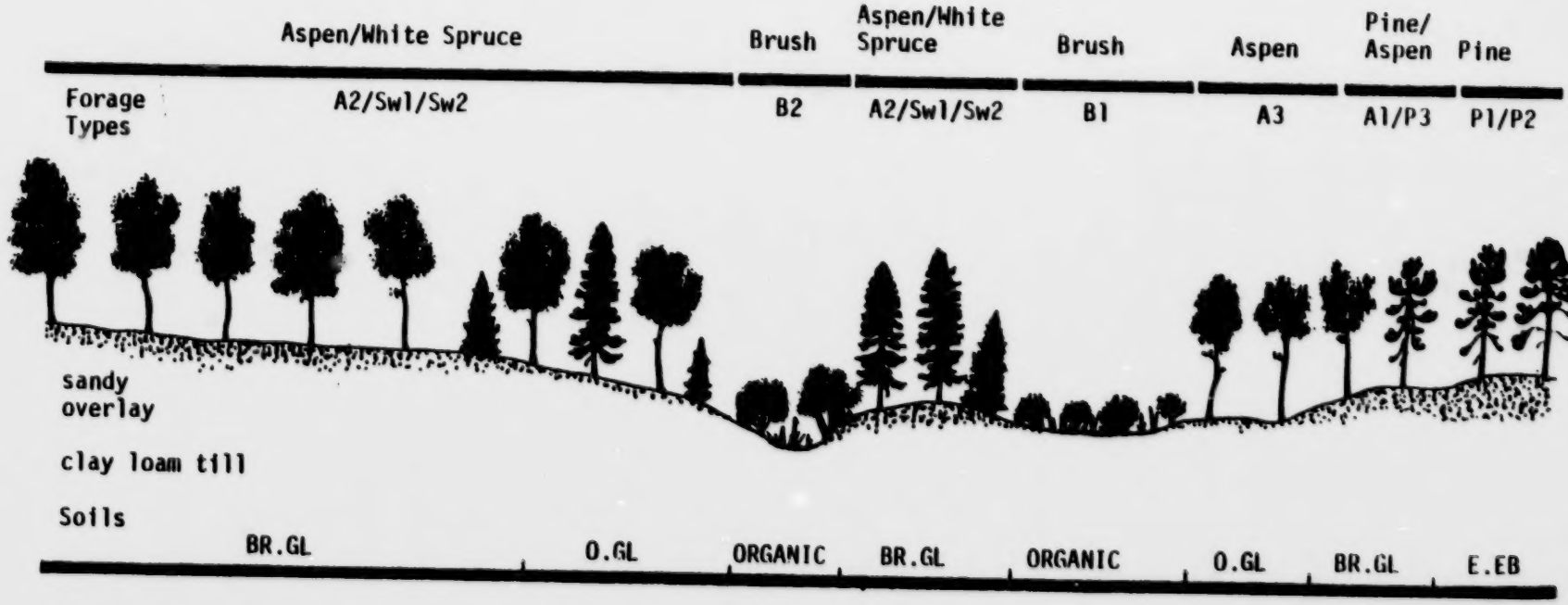
There are small wet areas of Organic soils which support the two brush types, Birch/Sedge/Moss (B1) and Willow/Sedge (B2). The Birch/

Sedge/Moss type occupies the drier of these sites while the Willow/Sedge type usually occurs in conjunction with open water.

Land use activities are currently limited to seismic activity, logging, hunting and recreation. The presence of old white spruce stands accounts for this being the only portion of the study area where timber harvesting has occurred in any appreciable amount.

A conceptual relationship between topography, soils, and vegetation in Integrated System II is depicted in Figure 6.

Figure 6. A Schematic Cross-Section of Integrated System II



* This cross-section does not represent a particular location within the study area nor does it reflect specific proportions of soils or forage types

4.3 Integrated System III

Integrated System III represents the broad expanses of poorly drained lowlands in the central and eastern portions of the study area. Its boundaries coincide with those of Geomorphic System III. This area is characterized by fairly level topography. There are raised areas of sandy deposits but elevation does not usually vary by more than 15 m.

The vegetation of System III is composed primarily of brushland, tamarack fen and black spruce bog. The occurrence of these types is directly related to the drainage and to the type of Organic soil present. The lowest, wettest, most eutrophic sites are occupied by the Willow/Sedge forage type (B2). This type usually occurs in conjunction with the small creeks that drain the centre of the wetlands. Moving outward from such a creek toward the edges of the wetlands, the conditions become slightly drier and less mineral-rich as the elevation is higher and peat accumulation has occurred. The brush fen type, Birch/Sedge/Moss (B1), usually occupies these areas. As the wetland becomes progressively drier, particularly at the surface, and less eutrophic and peat buildup is greater, the treed fen type, Tamarack/Birch/Sedge/Moss (L2) dominates. These three types occur on Typic Humisols, Typic Mesisols, Humic Mesisols and Mesic Humisols.

As conditions become more acidic and ombrotrophic toward the stagnant outer edges of the wetland area, a transition to black spruce bog, with a sphagnum moss understory takes place. The Organic soils which

characterize these areas are composed of Terric Humisols, Terric Mesisols, Terric Fibrisols and Fibric Mesisols. The transition type, Tamarack-Black Spruce/Sedge/Moss (Ll) has elements of the treed fen type and the black spruce bog type, Black Spruce/Labrador Tea/Moss (Sbl). This black spruce type occupies the periphery of the wetlands and the flanks of the raised sandy areas. Some broad, relatively shallow, stagnant depressional areas support only black spruce bog vegetation; conditions are not sufficiently eutrophic for the presence of any other types.

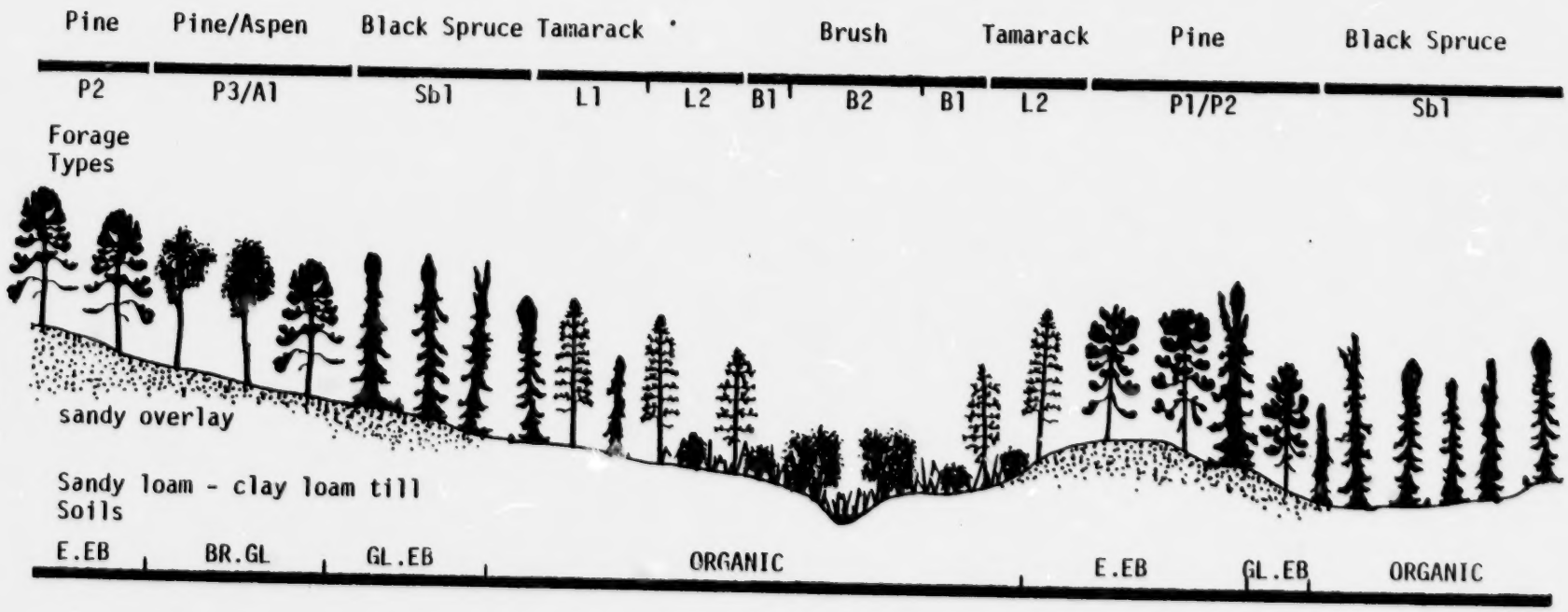
Brunisolic Gray Luvisols and Eluviated Eutric Brunisols occur on small raised areas and around the perimeters of the large expanses of wetlands. Eluviated Eutric Brunisols are found where the sandy glaciofluvial deposits are thick and drainage is therefore rapid. These sites are generally occupied by the xerophilic Pine/Bearberry/Lichen (P2) type. Brunisolic Gray Luvisols dominate where the sandy veneer is thinnest. These areas are characterized by the presence of the complex pine type, Pine/Alder/Blueberry & Pine/Alder/Twinflower/Feathermoss (P3), where frequent intense fire has occurred. The complex aspen type, Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla (Al), is found where recurrent burning has not been as severe.

Mixed stands of pine-black spruce may occupy raised areas if a source of black spruce seed is nearby; these stands have been identified as the Pine-Black Spruce/Feathermoss type (Pl).

Land use is very restricted in this system due to the hydric nature of most of the area. There is some seismic activity, hunting, and logging where tamarack stands exist near roads. These areas, even where black spruce bog predominates, appear to shelter an abundance of small animal life. Heavy browsing by ungulates occurs in the tamarack and birch fens. Hunting is hindered by a lack of good access in these areas. These large expanses of wetland often extend north and south several miles beyond the study area boundaries, thus creating difficulty in road building throughout the area.

A conceptual relationship between the topography, soils, and vegetation in Integrated System III is depicted in Figure 7.

Figure 7. A Schematic Cross-Section of Integrated System III



* This cross-section does not represent a particular location in the study area not does it reflect specific proportions of soils or forage types.

4.4 Integrated System IV

Integrated System IV represents an area west of the Sand River with boundaries corresponding to those of Geomorphic System IV. It is characterized by north-south trending glaciofluvial deposits which occur as a veneer overlying much of the area. The topography is undulating and elevation does not generally vary by more than 15 m.

The soils of the area are dominantly well drained and include mainly Brunisolic Gray Luvisols and Eluviated Eutric Brunisols. The sites are submesic to subxeric and fire has been prevalent in the area. Consequently, the vegetation of the system is dominated by young aspen and pine forest. The complex aspen type, Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla (A1), occurs where burning has been frequent but light. More severe fires have resulted in the presence of the complex pine type, Pine/Alder/Blueberry & Pine/Alder/Twinflower/Feathermoss (P3).

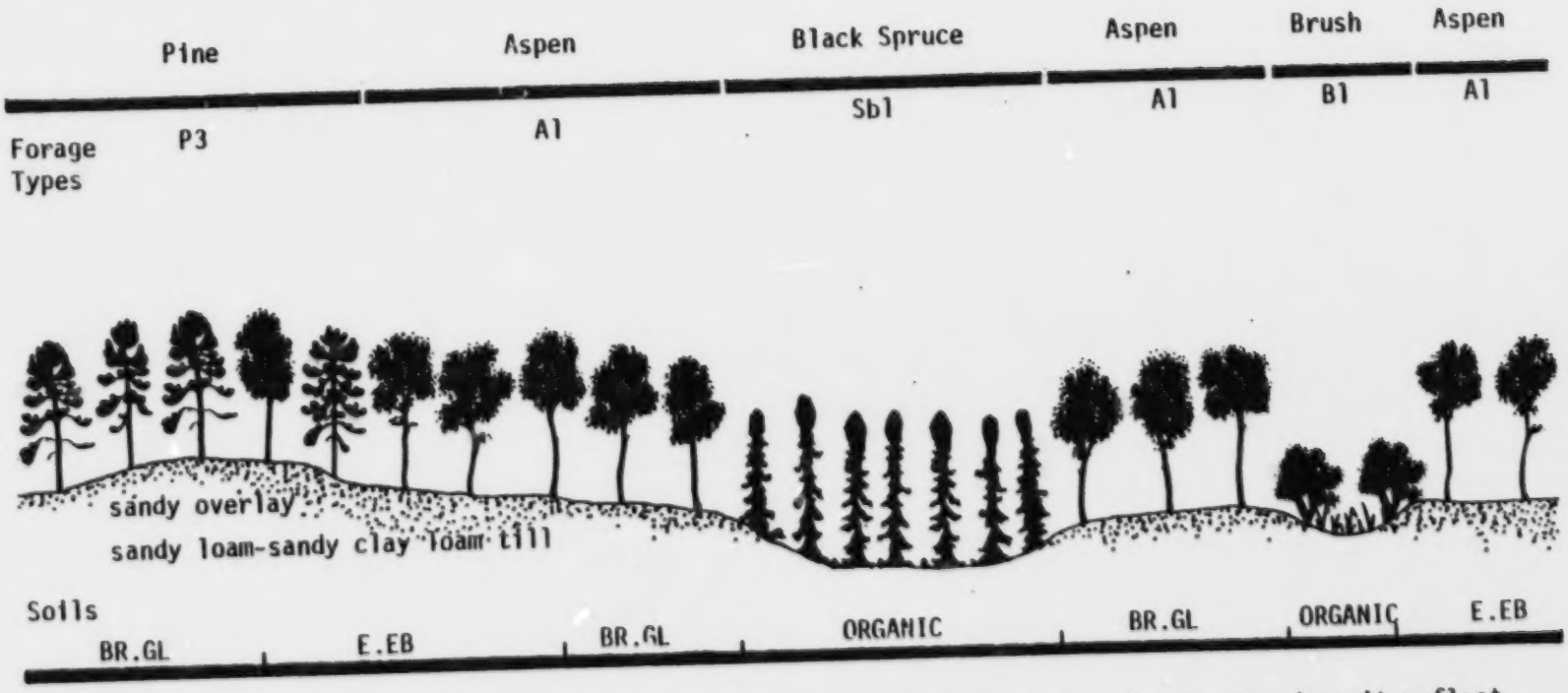
There are level to depressional areas which are occupied by Organic soils, namely Typic Humisols, Mesic Fibrisols, Fibric Mesisols and Humic Mesisols. The dominant vegetation on these is the black spruce bog type, Black Spruce/Labrador Tea/Moss (Sb1), which occurs on acidic, ombrotrophic sites. Occasionally, where the habitat is more eutrophic, the Birch/Sedge/Moss type (B1) will occur.

Land use in this system is restricted to hunting and recreation. Where System IV extends south beyond the study area boundaries, there are

tracts of improved and unimproved pasture which are found in conjunction with homesteads.

A conceptual relationship between the topography, vegetation, and soils of Integrated System IV is depicted in Figure 8.

Figure 8. A Schematic Cross-Section of Integrated System IV



* This cross-section does not represent a particular location within the study area nor does it reflect specific proportions of soils or forage types.

4.5 Integrated System V

This system occurs east of Punk Creek within the boundaries defined by Geomorphic System V. The topography is generally level but includes a few steep-sided ridges with depressional areas in between. There is a sandy veneer of variable thickness overlying much of the area. Elevational changes are generally less than 20 m.

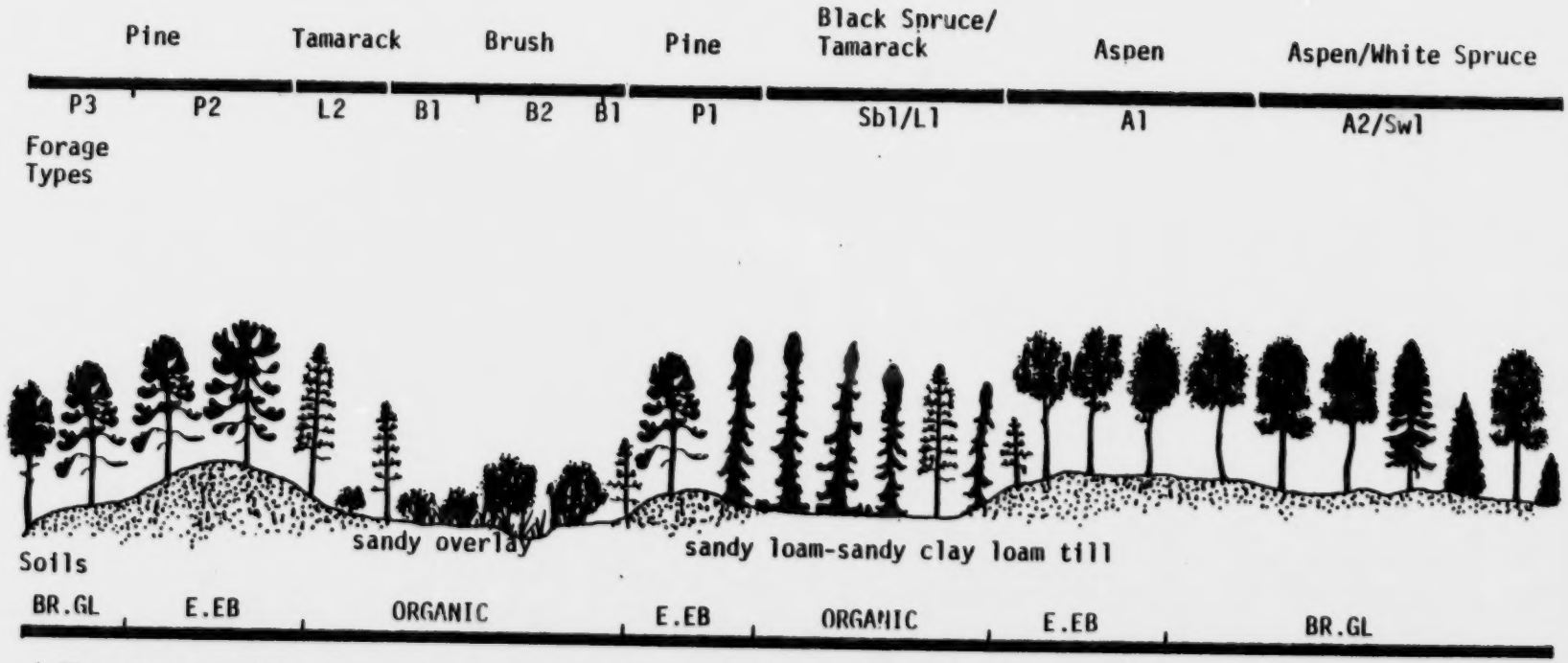
The presence of ridges and depressions in conjunction with differences in the thickness of the sandy overlay, account for the diversity of the vegetation in this system. Where the sandy overlay is thickest, on elevated areas, rapidly drained Eluviated Eutric Brunisols are found. Fire is usually frequent and severe on these sites and conditions are very xeric, supporting an open pine type, Pine/Bearberry/Lichen (P2). The Pine-Black Spruce/Feathermoss type (P1) may be present if a source of black spruce seed is nearby. Brunisolic Gray Luvisols dominate as the sandy veneer thins out. Repeated severe burning on these sites accounts for the presence of the complex pine type, Pine/Alder/Blueberry & Pine/Alder/Twinflower/Feathermoss (P3). On similar sites, frequent light fires have resulted in the occurrence of the young, dense aspen type, Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla (A1). Where fire has been excluded, there are old aspen and white spruce stands represented by the Aspen-Poplar/Cranberry type (A2) and the White Spruce-Aspen/Cranberry/Sarsaparilla type (Sw1).

The depressional areas between the ridges in the central portion of the system are occupied by Organic soils. The wetter, more eutrophic sites, which are generally associated with Mesic Humisols, usually support the brush type, Birch/Sedge/Moss (B1). There are lesser amounts of the Tamarack/Birch/Sedge/Moss (L2) and the Willow/Sedge (B2) types where conditions are either drier or wetter, respectively. The more acidic, ombrotrophic sites are occupied by Terric Fibrisols and Fibric Mesisols. The vegetation on these sites is usually the black spruce bog type, Black Spruce/Labrador Tea/Moss (Sb1),with lesser amounts of Tamarck-Black Spruce/ Sedge/Moss type (L1).

Land use is restricted to hunting and recreation, with some seismic activity.

A conceptual relationship between the topography, soils, and vegetation in Integrated System V is depicted in Figure 9.

Figure 9. A Schematic Cross-Section of Integrated System V



* This cross-section does not represent a particular location within the study area nor does it reflect specific proportions of soils or forage types.

4.6 Integrated System VI

Integrated System VI is comprised of the floodplains and valley banks of the Sand River. Its boundaries correspond to those of Geomorphic System VI. The local landforms associated with this system consist of a fairly level valley bottom, benches and terraces above the level of these floodplains, and the valley banks. The valley banks rise 60 m from the bottom, often with a slope gradient in excess of 20%. The soils of this system consist of only Orthic Regosols with very little or no profile development.

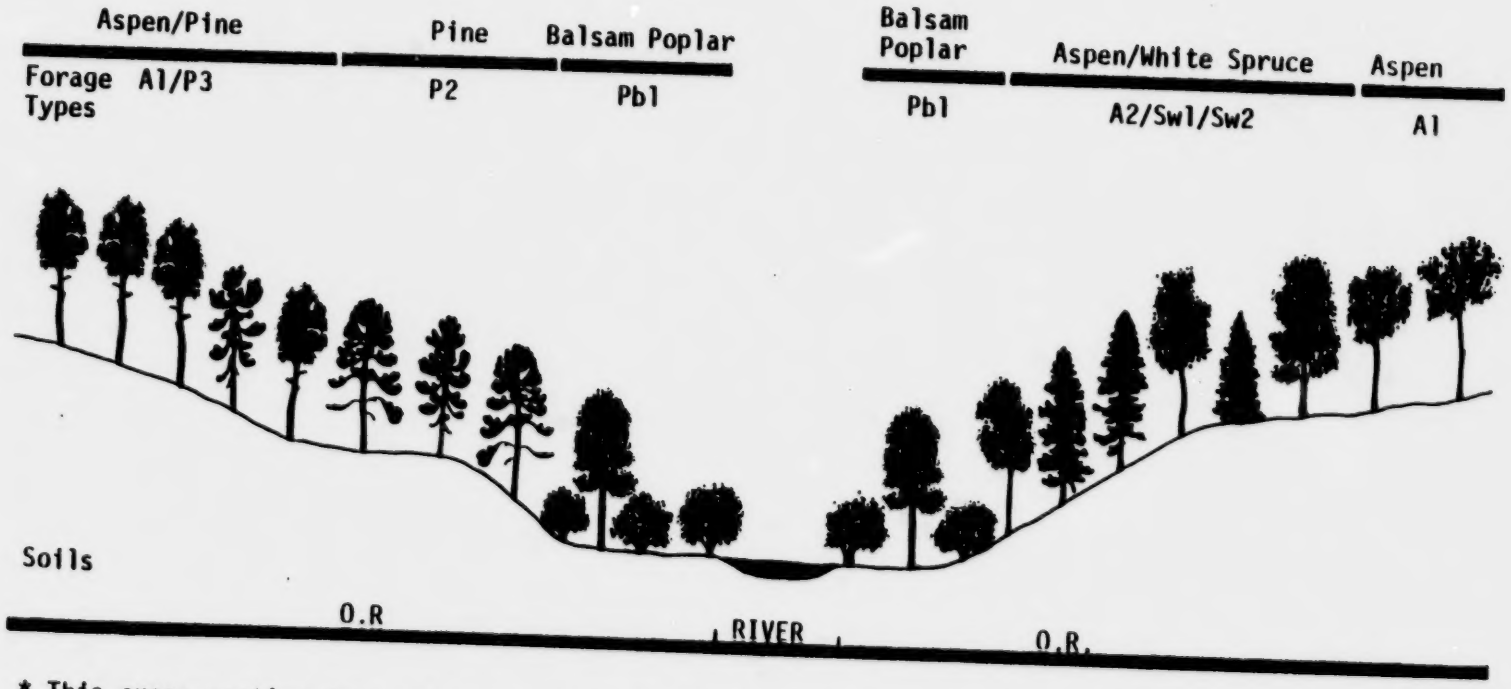
The vegetation is strongly influenced by the local landforms. The valley bottom, which is subject to regular flooding and a high water table, is occupied by the old, open balsam poplar type, Balsam Poplar/Willow/Reed Grass (Pb1), which includes scattered occurrences of mature white spruce. These balsam poplar stands are the most productive growth on these sites. The hydric nature of these sites has inhibited fire and encouraged prolific growth on these sites. The terraces and benches located on either side of the river are composed of sandy, and often gravelly material, which is rapidly drained. As these areas are xeric and fire-prone, they are occupied by the Pine/Bearberry/Lichen type (P2). The valley banks which are well drained and less xeric than the terraces and benches, are generally subject to less intense burning. The dominant vegetation is the young, dense aspen type, Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla (A1). In small areas where fire has been more prevalent,

the complex pine type, Pine/Alder/Blueberry & Pine/Alder/Twinflower/Feathermoss (P3) is present. The old aspen and white spruce types, Aspen-Poplar/Cranberry (A2), White Spruce-Aspen/Cranberry/Sarsaparilla (Sw1), and White Spruce/Feathermoss (Sw2), occur where recent burning has been excluded.

Agricultural land use is prevalent within this system although it is generally confined to the valley bottoms. Cleared cropland, improved pasture and unimproved rangeland are all present in conjunction with the three homesteads along the west side of the river. There is evidence that a fourth homestead may have existed at one time in the southernmost part of the system. A small amount of timber has been harvested where there are old white spruce stands on the valley banks. Hunting is restricted, probably due to the presence of private and leased land and the poor access into other unoccupied areas. There does appear to be utilization of the balsam poplar stands in the valley bottom by wildlife.

A conceptual relationship between the topography, soils, and vegetation in Integrated System VI is depicted in Figure 10.

Figure 10. A Schematic Cross-Section of Integrated System VI



* This cross-section does not represent a particular location within the study area not does it reflect specific proportions of soils or forage tynes

4.7 Integrated System VII

Integrated System VII occupies an area east of the Sand River with boundaries corresponding to those defined by Geomorphic System VII. The landscape is undulating with slopes of 3% or higher, generally, and the area is mantled by a sandy veneer. The elevational changes are usually less than 20 m.

The vegetation of the system covers almost all of the forage types identified for the study area but is predominantly the young dense aspen type, Aspen/Cranberry/Sarsaparilla (A3). This type, which also dominates System I, occurs under mesic conditions in association with Orthic Gray Luvisols and frequent light burning.

In areas where burning has been excluded, particularly in the vicinity of the small creeks that drain the system, there are old stands of aspen and white spruce. These include the Aspen-Poplar/Cranberry type (A2), the White Spruce-Aspen/Cranberry type (Sw1), and the White Spruce/Feathermoss type (Sw2).

There are significant areas of Brunisolic Gray Luvisols and Eluviated Eutric Brunisols where the sandy veneer is thicker and conditions are more arid. These sites are characterized by the presence of young pine or aspen forests. Fire is both repeated and severe. Where the sandy overlay is thickest and Eluviated Eutric Brunisols predominate, the open pine type, Pine/Bearberry/Lichen (P2) is found. As the sandy

veneer thins and Brunisolic Gray Luvisols are more prevalent, the dominant vegetation is the complex pine type, Pine/Alder/Blueberry & Pine/Alder/Twinflower/Feathermoss (P3) where frequent severe burning has occurred. If the fires are less severe, the complex aspen type, Aspen/Alder/Twinflower & Aspen/Willow/Sarsaparilla (A1) will occur instead.

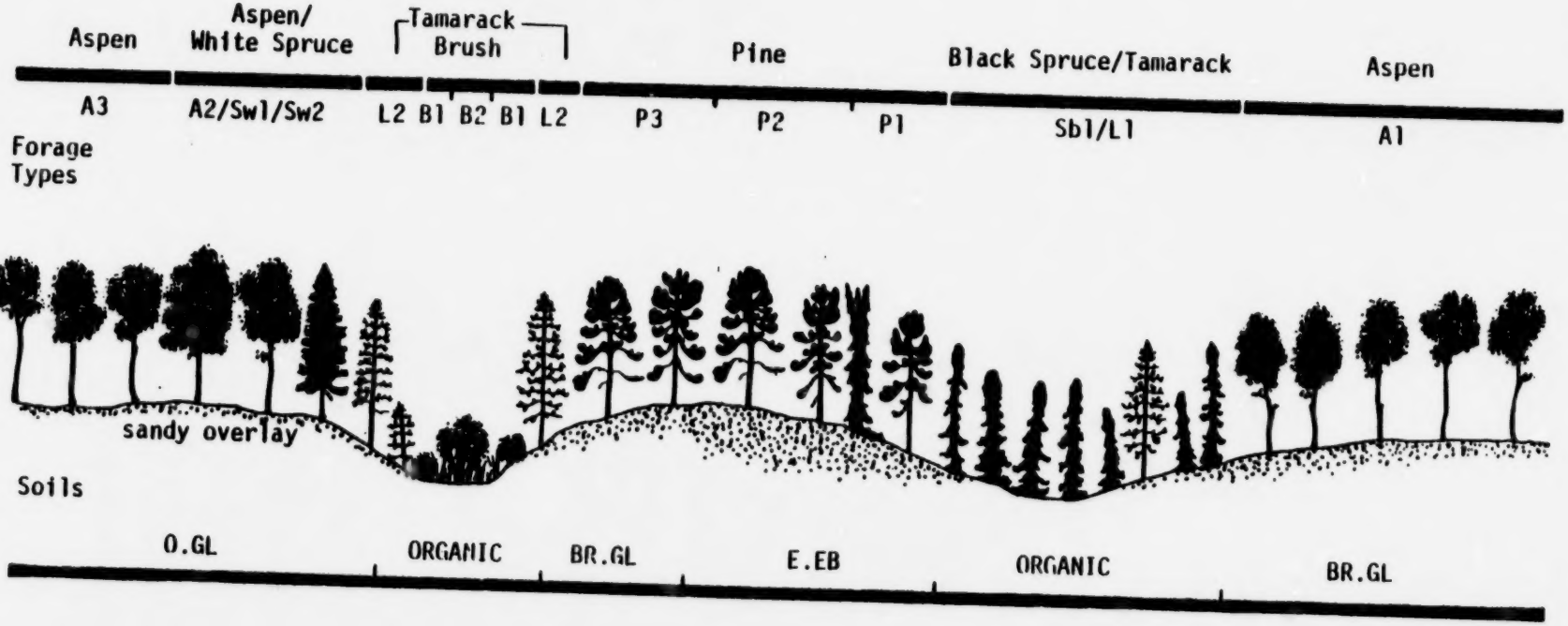
Mixed stands of pine-black spruce, characterized by the Pine-Black Spruce/Feathermoss type (P1), occupy raised areas near a source of black spruce seed, that is, black spruce bog. These areas are usually occupied by Eluviated Eutric Brunisols and Brunisolic Gray Luvisols.

The poorly drained depressional areas are occupied by Organic soils. The Fibric Mesisols, Terric Fibrisols, and Terric Mesisols are generally associated with acidic, ombrotrophic conditions and support the bog types, Black Spruce/Labrador Tea/Moss (Sb1) and Tamarack-Black Spruce/Sedge/Moss (L1). The fen types, Tamarack/Birch/Sedge/Moss (L2) and Birch/Sedge/Moss(B1), and the swamp type, Willow/Sedge (B2), are found on wetter, more eutrophic sites in association with Mesic Humisols and Humic Mesisols.

Land use is very restricted within this system as access is extremely poor. There is limited hunting and recreation. Where this system extends southeast of the study area boundaries, there are some tracts of improved and unimproved grazing in conjunction with several homesteads.

A conceptual relationship between topography, soils and vegetation is depicted in Figure 11.

Figure 11. A Schematic Cross-Section of Integrated System VII



* This cross-section does not represent a particular location within the study area nor does it reflect specific proportions of soils or forage types.

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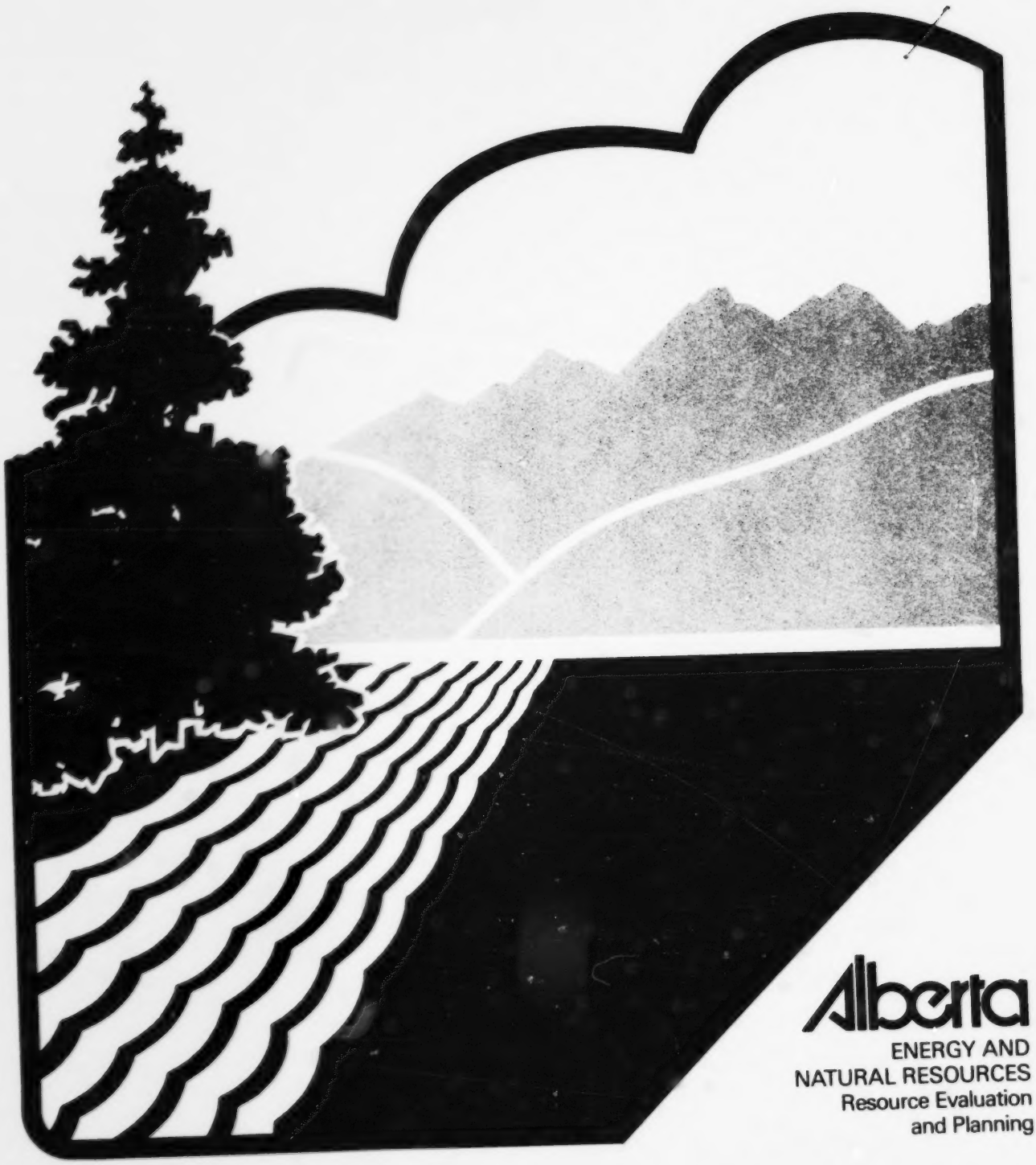
Volume

2

Integrated Resource Inventory

Physical Land and Forage Classification: Special Lakeland Area, Vol. II Appendices



Alberta

ENERGY AND
NATURAL RESOURCES
Resource Evaluation
and Planning

AN INTEGRATED RESOURCE INVENTORY

OF

THE SPECIAL LAKELAND AREA

VOLUME II

APPENDICES

Prepared by:

Land Classification and
Resource Inventory Sections
Resource Inventory and Appraisal
Alberta Energy and Natural Resources

ENR Report #T/48

Submitted by:

S. Sudi Kocaoglu
Kathleen E. Jaques Bennett

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Volume I of this publication contains the text.

Appendix A

DETAILED DESCRIPTIONS OF SOILS AT SELECTED SITES

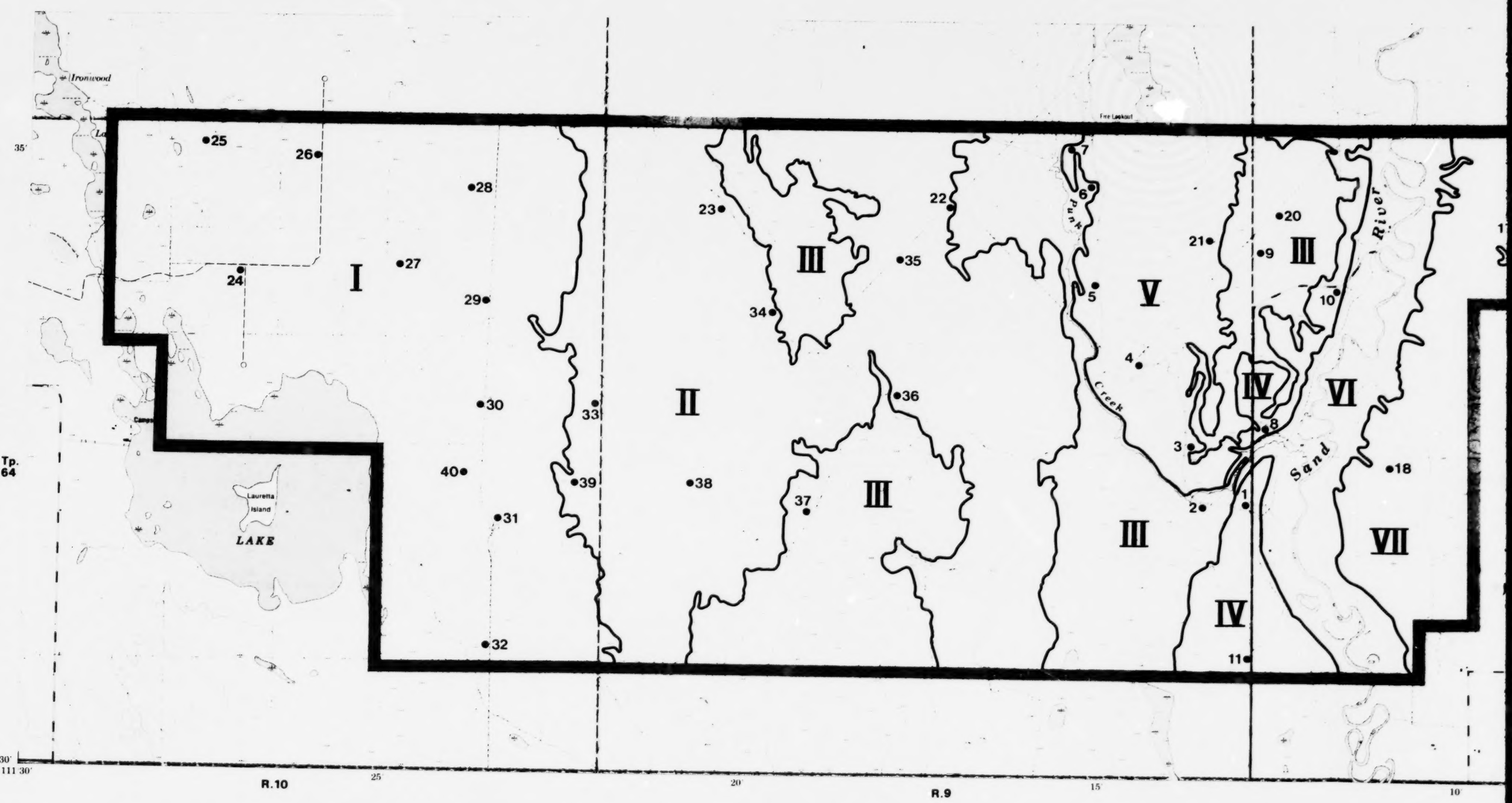

Fig. 2: GEOMORPHIC SYSTEMS

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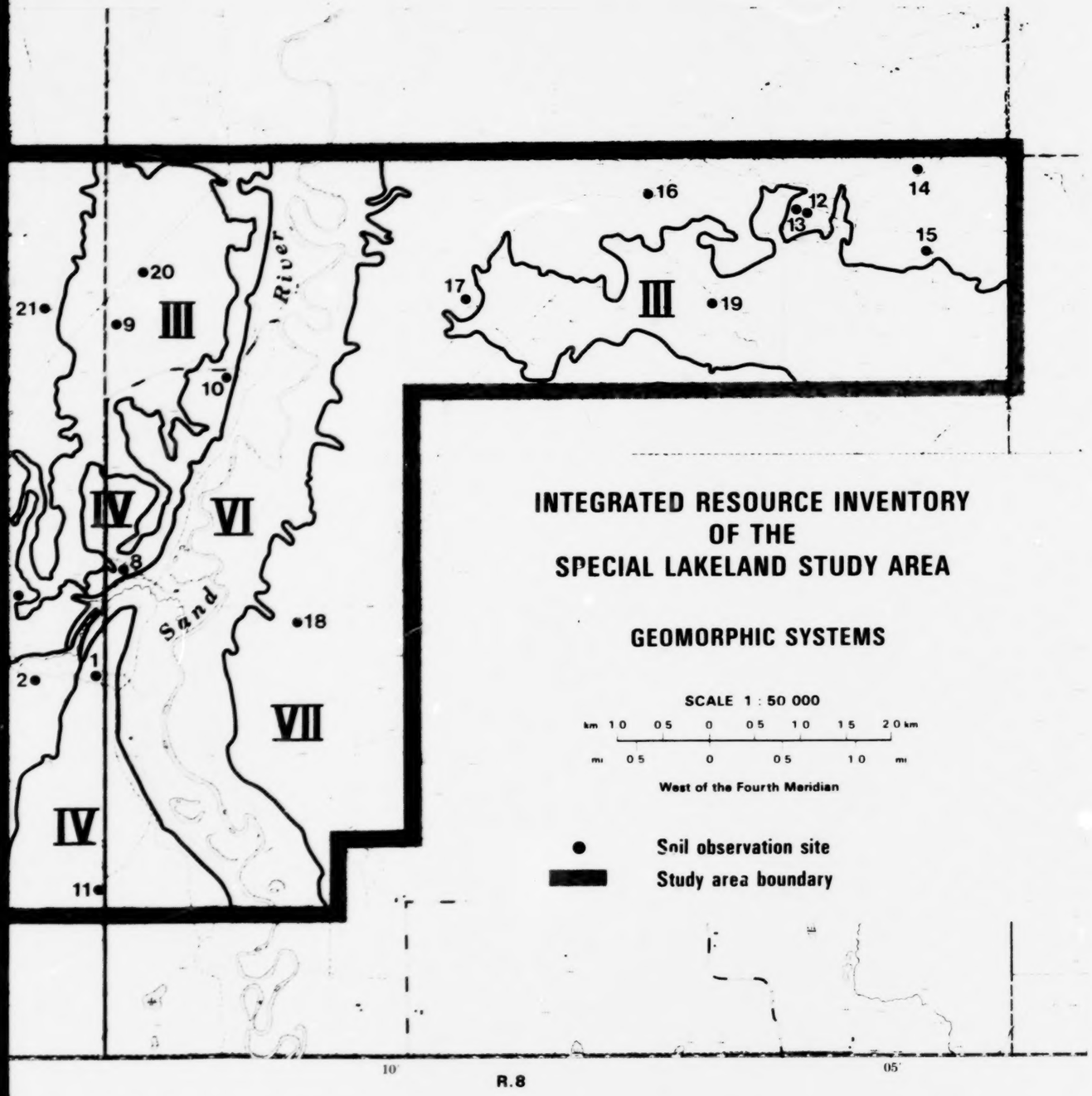


INTEGRATED RESOURCE INVENTORY OF THE SPECIAL LAKELAND STUDY AREA

GEOMORPHIC SYSTEMS

SCALE 1 : 50 000

km 1 0 0 5 0 0 5 1 0 1 5 2 0 km

mi 0 5 0 0 5 1 0 mi

West of the Fourth Meridian

● Soil observation site

Study area boundary

LL-1

Location	: NE 13-64-9-W4
Soil Classification	: Eluviated Eutric Brunisol
Parent Geologic Material	: Sandy glaciofluvial veneer over sandy loam to sandy clay loam till
Landform	: Moraine-controlled glaciofluvial
Surface Expression	: Undulating; 3 to 5% slope
Drainage	: Well
Vegetation Type	: Aspen/Willow/Cranberry/Fireweed

Soil Profile Description

L-H	5 to 0 cm; black (10YR 2/1 m) partially decomposed organic matter
Ae	0 to 7 cm; white to light gray (10YR 7.5/2 d) sand; single grain; loose, nonsticky, nonplastic
Bm	7 to 17 cm; brown (7.5YR 5/4 m) sand; single grain; loose, nonsticky, nonplastic
C	17 to 52 cm; yellowish brown (10YR 5/6 m) sand; single grain; loose, nonsticky, nonplastic
II C	52 to 75+ cm; light olive brown (2.5YR 5/4 m) sandy loam; amorphous; friable, slightly hard, nonsticky, slightly plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	200	90	L-	L	5.9	0.1	L-
15-30	0	200	111	L-	L	5.8	0.1	L-

LL-2

Location	:	NW 13-64-9-W4
Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial
Landform	:	Moranie-controlled glaciofluvial
Surface Expression	:	Undulating; 3 to 5% slope
Drainage	:	Rapidly
Vegetation	:	Pine/Bearberry/Lichen

Soil Profile Description

L-H	2.5 to 0 cm; black (10YR 2/1 m) partially decomposed organic matter
Ae	0 to 5 cm; pale brown (10YR 6/3 m) sand; single grain; loose, nonsticky, nonplastic
Bm	5 to 12 cm; brown to dark brown (7.5YR 4/4 m) sand; single grain; loose, nonsticky, nonplastic
C_1	12 to 67 cm; yellowish brown (10YR 5/6 m) sand; single grain; loose, nonsticky, nonplastic
C_2	67 to 87+ cm; brown to dark brown (7.5YR 4.5/4) coarse sand; single grain; loose, nonsticky, nonplastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	200	102	L-	L	5.8	0.1	L-
15-30	0	200	86	L-	L-	5.7	0.1	L-

LL-3

Location	:	SW 24-64-9-W4
Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating; 3 to 5% slope
Drainage	:	Well to rapidly
Vegetation	:	Pine-Aspen/Alder/Blueberry/Bearberry

Soil Profile Description

L-H	4 to 0 cm; black (10YR 2/1 m) partially decomposed organic matter
Ae	0 to 5 cm; light brownish gray (10YR 6/2 d) loamy fine sand; amorphous; loose, nonsticky, nonplastic
Bm	5 to 20 cm; brown to dark brown (7.5YR 4.5/4 m) loamy sand; amorphous; loose, nonsticky, nonplastic
C	20 to 60+ cm; yellowish brown (10YR 5/4 m) sand; single grain; loose, nonsticky, nonplastic; contains sandy loam to sandy clay loam bands with thickness of 1 to 2 cm

LL-3

Location	:	SW 24-64-9-W4
Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating; 3 to 5% slope
Drainage	:	Well to rapidly
Vegetation	:	Pine-Aspen/Alder/Blueberry/Bearberry

Soil Profile Description

L-H	4 to 0 cm; black (10YR 2/1 m) partially decomposed organic matter
Ae	0 to 5 cm; light brownish gray (10YR 6/2 d) loamy fine sand; amorphous; loose, nonsticky, nonplastic
Bm	5 to 20 cm; brown to dark brown (7.5YR 4.5/4 m) loamy sand; amorphous; loose, nonsticky, nonplastic
C	20 to 60+ cm; yellowish brown (10YR 5/4 m) sand; single grain; loose, nonsticky, nonplastic; contains sandy loam to sandy clay loam bands with thickness of 1 to 2 cm

LL-5

Location	:	NE 26-64-9-W4
Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over sandy loam to sandy clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Pine-Aspen/Alder/Blueberry/Bearberry

Soil Profile Description

L-H	7 to 0 cm; black (10YR 2/1 m) partially decomposed organic matter
Ae	0 to 5 cm; light brownish gray (10YR 6/2 d) sand; single grain; loose, nonsticky, nonplastic
Bm	5 to 20 cm; brown,(7.5YR 5/4 m) loamy sand; amorphous; loose, nonsticky, nonplastic
C	20 to 40 cm; light yellowish brown (10YR 6/4 m) sand; single grain; loose, nonsticky, nonplastic
II C	40+ cm; light yellowish brown to yellowish brown (10YR 5.5/4 m) sandy loam to sandy clay loam; amorphous; friable, hard, slightly sticky, plastic

LL-6

Location	:	N 35-64-9-W4
Soil Classification	:	Teric Humusol
Parent Geologic Material	:	Humic forest-fen peat veneer over sandy glaciofluvial
Landform	:	Horizontal fen
Surface Expression	:	Horizontal; 0 to 0.5% slope
Drainage	:	Very poorly
Vegetation	:	Black Spruce/Moss-Lichen

Soil Profile Description

O_f	0 to 20 cm; dark reddish brown (5YR 3/3 wet) fibric shpagnum moss; coarse fibered; includes some woody herbaceous material
Oh	20 to 80 cm; very dusky red (2.5YR 2.5/2 wet) humic forest-fen peat; very fine fibered; nonsticky, slightly plastic
II Cg	80+ cm; sand; single grain; loose, nonsticky, nonplastic

LL-7

Location	:	NW 35-64-9-W4
Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over sandy loam to sandy clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating, inclined; 6 to 15% slope
Drainage	:	Well
Vegetation	:	Aspen-Pine/Alder/Blueberry/Fireweed

Soil Profile Description

L-H	5 to 0 cm; black (10YR 2/1 m) partially decomposed organic matter
Ae	0 to 5 cm; white to light gray (10YR 7.5/2 d) sand; single grain; loose, nonsticky, nonplastic
Bm	5 to 20 cm; brown (7.5YR 5/4 m) loamy sand; amorphous; loose, nonsticky, nonplastic
C	20 to 45 cm; yellowish brown (10YR 5/6 m) sand; single grain; loose, nonsticky, nonplastic
II C	45+ cm; light olive brown (2.5YR 5/4 m) sandy loam to sandy clay loam, amorphous; friable, hard, slight sticky, plastic

LL-8

Location	:	SW 19-64-8-W4
Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over sandy loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Aspen/Alder/Blueberry/Sarsaparilla

Soil Profile Description

Similar to #LL-7 except that the underlying sandy loam till is 40 cm from the surface.

LL-9

Location	:	NW 30-64-8-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over sandy clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Inclined; 6 to 15% slope
Drainage	:	Well
Vegetation	:	Not available

Soil Profile Description

L-H	5 to 0 cm; black (10YR 2/1 m) semidecomposed organic matter
Ae1	0 to 8 cm; pale brown (10YR 6/3 m) sand; single grain; loose, non-sticky, nonplastic
Bm	8 to 26 cm; yellowish brown (10YR 5/4 m) loamy sand; amorphous; loose, nonsticky, nonplastic
Ae2	26 to 30 cm; grayish brown (10YR 5/2 m) sand; single grain; loose, nonsticky, nonplastic
II Bt	30 to 38 cm; brown to dark brown (10YR 4/3 m) sandy clay loam; weak, fine, subangular blocky; friable, hard, slightly sticky, plastic
II C	38+ cm; brown (10YR 5/3 m) sandy clay loam; amorphous; friable, hard, slightly sticky, plastic

LL-10

Location	:	NE 30-64-8-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over sandy clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating; 3 to 5% slope
Drainage	:	Well
Vegetation	:	Not available

Soil Profile Description

Similar to #LL-9.

LL-11

Location	:	SE 12-64-9-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over sandy loam to sandy clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating; 3 to 5% slope
Drainage	:	Well
Vegetation	:	Aspen/Alder/Cranberry/Bunchberry.

Soil Profile Description

Similar to #LL-9 except that the II Bt is 35 cm from the surface.

LL-12

Location	:	NE 35-64-8-W4
Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over sandy loam to sandy clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating, inclined; 3 to 15% slope
Drainage	:	Well
Vegetation	:	Aspen/Alder/Cranberry/Bunchberry

Soil Profile Description

L-H	4 to 0 cm; black (5YR 2.5/0 m) semidecomposed organic matter
Ae	0 to 5 cm; grayish brown to light grayish brown (10YR 5.5/2 m) sand; single grain; loose, nonsticky, nonplastic
Bm	5 to 23 cm; yellowish brown to light yellowish brown (10YR 5.5/4 m) loamy fine sand; amorphous; loose, nonsticky, nonplastic
C	23 to 48 cm; yellowish brown (10YR 5/4 m) sand; single grain; loose, nonsticky, nonplastic
II C	48+ cm; dark yellowish brown (10YR 4/4 m) silty loam; amorphous; friable, slightly hard, slightly sticky, plastic

SOIL TEST RESULTS

Depth	Pounds per Acre						Conductivity	Organic
(cm)	(N)	(P)	(K)	(Na)	(S)	pH	mmhos.	Matter
0-15	0	25	77	L-	L	5.2	0.1	L
15-30	0	7	116	L-	L	5.5	0.1	L

LL-13

Location	:	N 35-64-8-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over sandy loam to sandy clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Inclined; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Pine/Alder/Bunchberry/Twinflower/Feathermoss

Soil Profile Description

L-H	3 to 0 cm; black (10YR 2/1 m) semidecomposed organic matter
Ael	0 to 3 cm; pale brown (10YR 6/3 m) sand; single grain; loose, non-sticky, nonplastic
Bm	3 to 18 cm; brown (7.5YR 5/4 m) loamy sand; amorphous; very friable, soft, nonsticky, nonplastic
Ae2	18 to 23 cm; pale brown (10YR 6/3 m) sand; single grain; loose, non-sticky, nonplastic
II Bt	23 to 35 cm; brown to dark brown (10YR 4/3 m) clay loam to clay; moderate, fine, subangular blocky; firm, hard, sticky, plastic
II C	35+ cm; brown (10YR 5/3 m) sandy clay loam; amorphous; friable, hard, slightly sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	12	137	L-	L	5.8	0.1	L
15-30	0	4	195	L-	L	5.4	0.1	L

LL-14

Location	:	NW 36-64-8
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay loam to silty clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well to moderately well
Vegetation	:	Aspen-White Spruce/Willow/Saskatoon/Blueberry/ Rye

Soil Profile Description

L-H 3 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter.

Ae 0 to 7 cm; pale brown to brown (10 YR 5/3 m) sand; single grain; loose, non sticky, non-plastic.

AB 7 to 18 cm; brown to dark brown (10 YR 4.5/3 m) loamy sand; amorphous; loose, soft, non sticky, non plastic.

Bt 18 to 40 cm; dark brown (10 YR 3.5/3 m) silty loam; weak, fine, sub-angular blocky; friable, hard, slightly sticky, plastic

C 40 + cm; dark yellowish brown (10 YR 3/4 m) silty clay loam; amorphous; firm, hard, sticky, plastic

SOIL TEST RESULTS

Depth	Pounds per Acre						Conductivity	Organic
(cm)	(N)	(P)	(K)	(Na)	(S)	pH	mmhos.	Matter
0-15	0	25	159	L-	L+	5.8	0.1	L
15-30	0	11	447	L-	L	5.6	0.2	L

LL-15

Location	:	SE 36-64-8-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Pine-White Spruce-Aspen/Buffaloberry/Bearberry

Soil Profile Description

L-H 4 to 0 cm; black (2.5 YR 2.5/0 m) semi-decomposed organic matter.

Ae 0 to 8 cm; brown (10 YR 5/3 m) loamy sand; amorphous; loose, soft, non sticky, non plastic

Bt 8 to 25 cm; dark yellowish brown (10 YR 4/4 m) clay; moderate, fine, subangular blocky; firm, very hard; sticky, plastic

C 25+ cm; dark yellowish brown (10 YR 3/4 m) clay loam; amorphous; firm, hard, sticky, plastic.

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	1	30	370	L-	L+	5.6	0.1	L
15-30	0	13	520	L-	L	5.6	0.2	L+

LL-16

Location	:	NE 34-64-8-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over sandy clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Aspen-Pine/Alder/Bog Cranberry-Bearberry

Soil Profile Description

L-H	3 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter.
Ae1	0 to 4 cm; light brownish gray (10 YR 6/2 d) sand; simple grain; loose, non sticky, non plastic
Bm	4 to 16 cm; brown to dark brown (7.5 YR 4.5/4) loamy sand; amorphous; very friable, loose, non sticky, non plastic
Ae2	16 to 18 cm; brown to pale brown (10 YR 5.5/3 m) sand; single grain; loose, non sticky, non plastic
II Bt	18 to 34 cm; dark yellowish brown (10 YR 3.5/4 m) clay loam; weak, fine, subangular blocky; firm; hard; sticky, plastic
II C	34 cm+; yellowish brown to dark yellowish brown (10 YR 4.5/4 m) sandy clay loam; amorphous; friable, hard, slightly sticky, plastic.

LL-17

Location	:	SW33-64-8-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating, ridged; 10 to 25% slope
Drainage	:	Well
Vegetation	:	Aspen-White Spruce/Hazelnut/Fireweed/Violet

Soil Profile Description

L-H 8 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter.

Ae 0 to 8 cm; brown to pale brown (10 YR 5.5/3 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic

AB 8 to 15 cm; brown (10 YR 5/3 m) loamy sand; very friable; brown, non sticky, non plastic

II Bt 15 to 32 cm; dark yellowish brown (10 YR 3.5/4 m) clay loam; weak, fine, sub-angular blocky; firm, hard, sticky, plastic

II C 32+ cm; dark yellowish brown (10 YR 4/4 m) clay loam; amorphous; firm, hard, sticky, plastic

LL-18

Location	:	NW 17-64-8-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Aspen/Willow/Rose/Sarsaparilla-Fireweed

Soil Profile Description

L-H 8 to 0 cm; black (10 YR 2/1) semi-decomposed organic matter

Ae 0 to 8 cm; pale brown (10 YR 6/3 d) loamy sand; amorphous; very friable, loose, non sticky, non plastic

AB 8 to 18 cm; yellowish brown (10 YR 5/4 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic

II Bt 18 to 36 cm; dark yellowish brown (10 YR 4/4 m) clay loam; weak, fine, subangular blocky; firm, hard, sticky, plastic

II C 36+ cm; grayish brown (10 YR 5/2 m) clay loam; amorphous; firm, hard, sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	31	120	L-	L	5.0	0.2	L
15-30	0	4	299	L-	L+	4.9	0.2	L+

LL-19

Location	:	SW 35-64-8-W4
Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial
Landform	:	Glaciofluvial
Surface Expression	:	Ridged; 6 to 9% slope
Drainage	:	Rapidly
Vegetation	:	Pine-Black Spruce/Bog Cranberry/Lichen

Soil Profile Description

L-H	3 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae	0 to 5 cm; gray to light gray (10 YR 6/1 d) sand; single grain; loose, non sticky, non plastic
Bm	5 to 28 cm; brown to dark brown (7.5 YR 4/4 m) gravelly,coarse sand; single grain, loose; non sticky, non plastic
C	28 to 65 + cm; brown to dark brown (10 YR 4.5/4 m) coarse sand; single grain; loose, non sticky, non plastic

LL-20

Location	:	SW 31-64-8-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Aspen-White Spruce/Cranberry/Feathermoss

Soil Profile Description

L-H	3 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae1	0 to 1 cm; brown to pale brown (10 YR 5.5/3 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic
Bm	1 to 9 cm; dark yellowish brown (10 YR 4/4 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic
Ae2	9 to 14 cm; pale brown (10 YR 6/3 m) sand; single grain, loose, non sticky, non plastic
II Bt	14 to 25 cm; dark yellowish brown (10 YR 4/4) clay loam; weak, fine, subangular blocky; firm, hard, sticky, plastic

SOIL TEST RESULTS

Depth	Pounds per Acre						Conductivity	Organic
(cm)	(N)	(P)	(K)	(Na)	(S)	pH	mmhos.	Matter
0-15	0	2	90	L-	L	5.5	0.1	L
15-30	0	3	183	L-	L	5.9	0.1	L

LL-21

Location	:	SE 36-64-9-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Moraine-controlled glacio-fluvial
Surface Expression	:	Undulating 3 to 9% slope
Drainage	:	Well
Vegetation	:	Aspen-White Spruce/Cranberry/Rye

Soil Profile Description

L-H	5 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ael	1 to 4 cm; brown to pale brown (10 YR 5.5/3 m) sand; single grain; loose, non sticky, non plastic
Bm	4 to 24 cm; dark yellowish brown (10 YR 4/4 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic
Ae2	24 to 30 cm; brown to pale brown (10 YR 5.5/3 m) sand; single grain; loose, non sticky, non plastic
II Bt	30 to 44 cm; brown to dark brown (10 YR 4/3 m) clay loam; weak, fine, subangular blocky; firm, hard, sticky, plastic
II C	44+ cm; dark yellowish brown (10 YR 4/4 m) clay loam; amorphous; firm, hard, sticky, plastic

LL-22

Location	:	SW 34-64-9-W4
Soil Classification	:	Gleyed Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating; 2 to 5% slope
Drainage	:	Moderately well to imperfect
Vegetation	:	White Spruce/Feathermoss

Soil Profile Description

L-H	10 to 0 cm; black (10 YR 2/1 m) partially decomposed organic matter
Ae	0 to 8 cm; light brownish gray (10 YR 6/2 d) loamy sand; amorphous; very friable, loose, non sticky, non plastic
Bmgj	8 to 18 cm; yellowish brown (10 YR 5/4 m) sand; common, medium, distinct, reddish brown mottles; single grain; loose, non sticky non plastic
Cgj	18 to 43 cm; light yellowish brown (10 YR 6/4 m) sand; common, medium, faint, gray mottles; single grain; loose, non sticky, non plastic
II C	43 + cm; brown to dark brown (10 YR 4.5/3 m) clay loam; amorphous; firm, hard, sticky, plastic.

LL-23

Location	:	SW 32-64-9-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay loam to clay till
Landform	:	Morainal
Surface Expression	:	Undulating, inclined, 3 to 9% slope
Drainage	:	Moderately well
Vegetation	:	Aspen-White Spruce/Cranberry/Sarsaparilla

Soil Profile Description

L-H 5 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter

Ae 0 to 5 cm; grayish brown to light grayish brown (10 YR 5.5/2 m) sand; single grain; loose, non sticky, non plastic

AB 5 to 13 cm; yellowish brown to light yellowish brown (10 YR 5.5/4 m) loam; amorphous; friable, slightly hard, slightly sticky, slightly plastic

Bt 13 to 33 cm; brown to dark brown (10 YR 4.5/3 m) clay; moderate, fine, subangular blocky; firm, very hard, sticky, plastic

C 33+ cm; brown to dark brown (10 YR 4/3 m) clay; amorphous; firm, very hard, sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	3	259	L-	L	5.1	0.1	L
15-30	0	2	371	L-	L	5.2	0.1	L+

LL-24

Location	:	NE 28-64-10-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating, hummocky; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Aspen/Willow/Fireweed

Soil Profile Description

L-H	8 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae	0 to 5 cm; brown to pale brown (10 YR 5.5/3 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic
AB	5 to 15 cm; dark yellowish brown (10 YR 4/4 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic
II Bt	15 to 35 cm; brown to dark brown (10 YR 4/3 m) clay loam; weak, fine, subangular blocky; firm, hard, sticky, plastic
II C	35+ cm; dark yellowish brown (10 YR 4/4 m) clay loam; amorphous; firm, hard, sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	6	190	L-	M-	5.4	0.1	L+
15-30	0	4	133	L-	L	5.7	0.1	L

LL-25

Location	:	NW 33-64-10-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating, hummocky; 6 to 15% slope
Drainage	:	Well to moderately well
Vegetation	:	Aspen/Willow/Rose-Hazelnut/Sarsaparilla

Soil Profile Description

L-H 8 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter

Ae 0 to 6 cm; light yellowish brown (10 YR 6/2 m) loamy sand; weak, fine, platy; very friable, loose, non sticky, non plastic

Bt 6 to 35 cm; brown to dark brown (10 YR 4.5/3 m) silty clay loam; weak, fine, subangular blocky; friable, hard, slightly sticky, plastic

C 35 cm+; dark yellowish brown (10 YR 4/4 m' clay loam; amorphous; firm, hard, sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	9	105	L-	L-	5.6	0.1	L
15-30	0	3	344	L-	L-	4.7	0.2	L

LL-26

Location	:	NW 34-64-10-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating, hummocky; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Aspen/Willow/Rose-Cranberry/Sarsaparilla

Soil Profile Description

L-H	5 to 0 cm; black (10 YR 2/1) semi-decomposed organic matter
Ae1	0 to 8 cm; brown to pale brown (10 YR 5.5/3 m) sand; single grain; loose, non sticky, non plastic
Btj	8 to 23 cm; dark yellowish brown (10 YR 4/4 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic; contains thin, discontinuous sandy loam bands
Ae2	23 to 28 cm; brown to pale brown (10 YR 5.5/3 m) sand; single grain; loose, non sticky, non plastic
II Bt	28 to 43 cm; dark yellowish brown (10 YR 4/4 m) clay loam; weak, fine, subangular blocky; firm, hard, sticky, plastic
II C	43+ cm; yellowish brown (10 YR 5/4 m) clay loam; amorphous; firm, hard, sticky, plastic

LL-27

Location	:	NW 26-64-10-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay till
Landform	:	Morainal
Surface Expression	:	Hummocky; 5 to 15% slope
Drainage	:	Well to moderately well
Vegetation	:	Aspen/Rose/Rye

Soil Profile Description

L-H 8 to 0 cm; black (10 YR 2/1 m) partially decomposed organic matter

Ah 0 to 2 cm; very dark grayish brown (10 YR 3/2 m) loam; friable, soft, slightly sticky, slightly plastic

Ae 2 to 10 cm; yellowish brown to light yellowish brown (10 YR 5.5/4 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic

Bt 10 to 20 cm; dark yellowish brown (10 YR 4/4 m) clay; moderate, fine, subangular blocky; firm, very hard, sticky, plastic

C 20 to 45+ cm; dark yellowish brown (10 YR 3/4 m) clay; amorphous; firm, very hard, sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	10	340	L-	L+	5.6	0.2	L
15-30	1	4	327	M+	M+	4.7	0.2	L

LL-28

Location	:	SE 35-64-10-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating, hummocky; 6 to 15% slope
Drainage	:	Well to moderately well
Vegetation	:	Aspen/Willow/Cranberry/Star-flower-Bunchberry

Soil Profile Description

L-H 8 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter

Ae 0 to 9 cm; brown to pale brown (10 YR 5.5/3 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic

Bt 9 to 24 cm; dark yellowish brown (10 YR 3.5/4 m) silty clay loam; weak, fine, subangular blocky; friable, hard, slightly sticky, plastic

C 24 to 40+ cm; dark yellowish brown (10 YR 4/4 m) clay loam; amorphous; firm, hard, sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	6	147	L-	L+	4.8	0.1	L
15-30	0	4	207	L-	M-	4.6	0.1	L

LL-29

Location	:	SE 26-64-10-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay loam till
Landform	:	Morainal
Surface Expression	:	Hummocky; 10 to 25% slope
Drainage	:	Well to moderately well
Vegetation	:	Aspen/Hazelnut/Lily-of-the-Valley

Soil Profile Description

Similar to #LL-28

LL-30

Location	:	SE 23-64-10-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well to moderately well
Vegetation	:	Aspen/Cranberry/Sarsaparilla-Fireweed

Soil Profile Description

L-H 8 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter

Ah 0 to 2 cm; very dark grayish brown (10 YR 3/2 m) fine sandy loam; amorphous; friable, soft, non sticky, slightly plastic

Ae 2 to 10 cm; brown to dark brown (10 YR 4.5/3 m) fine sandy loam; amorphous; friable, soft, non sticky, slightly plastic

Bt 10 to 27 cm; dark yellowish brown (10 YR 4.4 m) clay loam; weak, fine, subangular blocky; firm, hard, sticky, plastic

C 27 to 40 cm; yellowish brown (10 YR 5/4 m) clay loam; friable, hard, slightly sticky, plastic

SOIL TEST RESULTS

Depth	Pounds per Acre						Conductivity	Organic
(cm)	(N)	(P)	(K)	(Na)	(S)	pH	mmhos.	Matter
0-15	0	8	175	L-	M-	4.7	0.1	L
15-30	0	3	204	L-	L	4.5	0.1	L

LL-31

Location	:	SW 13-64-10-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Morainal
Surface Expression	:	Hummocky; 6 to 15% slope
Drainage	:	Well
Vegetation	:	Aspen/Willow/Cranberry

Soil Profile Description

L-H	4 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae1	0 to 8 cm; brown to pale brown (10 YR 5.5/3 m) sand; single grain; loose, non sticky, non plastic
Bm	8 to 30 cm; yellowish brown (10 YR 5/4 - 5/6 m) loamy fine sand; amorphous; very friable, loose, non sticky, non plastic
Ae2	30 to 35 cm; light yellowish brown (10 YR 6/4 m) sand; single grain; loose; non sticky, non plastic
II Bt	35 to 50 cm; dark yellowish brown (10 YR 3/4 m) clay loam; weak, fine, subangular blocky; firm, hard, sticky, plastic
II C	50+ cm; yellowish brown (10 YR 5/4 m) clay loam; amorphous; friable, hard, sticky, plastic

LL-32

Location	:	SE 11-64-10-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay till
Landform	:	Morainal
Surface Expression	:	Undulating, hummocky; 6 to 15% slope
Drainage	:	Well to moderately well
Vegetation	:	Aspen-Poplar/Hazelnut/Fireweed-Sarsaparilla

Soil Profile Description

L-H	5 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae1	0 to 5 cm; pinkish gray (7.5 YR 6/2 m) sand; single grain; loose, non sticky, non plastic
Bm	5 to 13 cm; brown to dark brown (7.5 YR 4.5/4 m) loamy fine sand; very friable, loose, non sticky, non plastic
Ae2	13 to 15 cm; brown (10 YR 5/3 m) sandy loam; amorphous; friable, slightly hard, non sticky, slightly plastic
Bt	15 to 35 cm; brown (10 YR 5/3 m) silty clay loam; weak, fine, sub-angular blocky; friable, firm, slightly sticky, plastic
C	35 to 50 cm; brown (10 YR 5/3 m) fine sandy loam; amorphous; friable, slightly hard, non sticky, slightly plastic
II C	50 to 60 + cm; dark yellowish brown (10 YR 3/4 m) clay, amorphous; firm, very hard, sticky, plastic.

LL-33

Location	:	SE 24-64-10-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay loam to clay
Landform	:	Morainal
Surface Expression	:	Undulating, inclined; 3 to 9% slope
Drainage	:	Well to moderately well
Vegetation	:	Aspen/Alder-Saskatoon/Sarsaparilla/Lily-of-the-Valley

Soil Profile Description

L-H 10 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter

Ae 0 to 5 cm; brown to pale brown (10 YR 5.5/3 m) fine sandy loam; weak, fine, platy; friable, slightly hard, non sticky, slightly plastic

AB 5 to 13 cm; brown (10 YR 5/3 m) very fine sandy loam; amorphous; friable, slightly hard, non sticky, slightly plastic

Bt 13 to 35 cm; brown to dark brown (10 YR 4/3 m) silty clay loam; weak, fine, subangular blocky; friable, hard, sticky, plastic

C 35 to 50+ cm; dark yellowish brown (10 YR 4/4 m) clay loam to clay; amorphous, firm, hard, sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	5	143	L-	L	4.8	0.1	L
15-30	0	3	288	L	L	4.5	0.1	L

LL-34

Location	:	SE 29-64-9-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating, inclined; 3 to 9% slope
Drainage	:	Well to moderately well
Vegetation	:	Poplar-White Spruce/Alder/Cranberry/Sarsaparilla

Soil Profile Description

L-H	15 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae	0 to 8 cm; brown to pale brown (10 YR 5.5/3 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic
Bm	8 to 25 cm; brown (10 YR 5/4 m) sand; few, fine, distinct, reddish brown mottles
II Bt	25 to 40 cm; brown to dark brown (10 YR 4/3 m) silty clay loam; weak, fine, subangular blocky; friable, hard, sticky, plastic
II C	40+ cm; brown (10 YR 5/3 m) clay loam; amorphous; friable, hard, sticky, plastic

LL-35

Location	:	NE 28-64-9-W4
Soil Classification	:	Brunisolic Gray Luvisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well to moderately well
Vegetation	:	Balsam Poplar-White Spruce/Alder/Fireweed

Soil Profile Description

L-H	8 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae	0 to 4 cm; grayish brown to light grayish brown (10 YR 5.5/2 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic
Bm	4 to 27 cm; yellowish brown to dark yellowish brown (10 YR 5.5/4 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic
II Bt	27 to 46 cm; yellowish brown (10 YR 5/4 m) clay loam; weak, fine, subangular blocky; friable, hard, sticky, plastic
II C	46 + cm; brown to dark brown (10 YR 4.5/3 m) clay loam; amorphous; friable, hard, sticky, plastic.

LL-36

Location	:	NE 21-64-9-W4
Soil Classification	:	Eluviated Eutric Brunisol
Parent Geologic Material	:	Sandy glaciofluvial veneer over clay loam till
Landform	:	Moraine-controlled glaciofluvial
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Well
Vegetation	:	Aspen-Poplar-White Spruce/Fireweed-Sarsaparilla

Soil Profile Description

L-H	5 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae	0 to 8 cm; brown to pinkish gray (7.5 YR 5.5/2 m) sand; single grain; loose, non sticky, non plastic
Bm	8 to 18 cm; brown to dark brown (7.5 YR 4.5/4 m) loamy sand; amorphous; very friable, loose, non sticky, non plastic
C	18 to 38 cm; brown to light brown (7.5 YR 5.5/4 m) sand; single grain; loose, non sticky, non plastic
II C	38 to 50+ cm; brown to dark brown (10 YR 4/3 m) clay loam; amorphous; friable, hard, sticky, plastic

LL-37

Location	:	SE 17-64-9-W4
Soil Classification	:	Gleyed Eutric Brunisol
Parent Geologic Material	:	Sandy eolian veneer over fine sandy loam glaciolacustrine
Landform	:	Glaciolacustrine
Surface Expression	:	Undulating; 3 to 5% slope
Drainage	:	Moderately well to imperfect
Vegetation	:	Aspen-White Spruce/Cranberry/Sarsaparilla

Soil Profile Description

L-H	10 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae	0 to 5 cm; brown to pale brown (10 YR 5.5/3 m) sand; single grain; loose, non sticky, non plastic
Bmgj	5 to 25 cm; brown (10 YR 5/3 m) sand; many, fine, distinct, reddish brown mottles; single grain; loose, non sticky, non plastic
Cgj	25 to 45 cm; yellowish brown to light yellowish brown (10 YR 5.5/4 m) sand; many, fine, distinct, reddish brown mottles; single grain; loose, non sticky, non plastic
II Cgj	45+ cm; brown to dark brown (7.5 YR 4/4 m) very fine sandy loam; amorphous; friable, slightly hard, slightly sticky, slightly plastic

LL-38

Location	:	NE 18-64-9-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Clay till
Landform	:	Morainal
Surface Expression	:	Undulating, hummocky; 6 to 9% slope
Drainage	:	Moderately well
Vegetation	:	Balsam Poplar-White Spruce/Cranberry/ Sarsaparilla

Soil Profile Description

L-H 10 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter

Ae 0 to 8 cm; brown to pale brown (10 YR 5.5/3 m) fine sandy loam; weak, fine, platy; friable, slightly hard, non sticky, slightly plastic

Bt 8 to 23 cm; dark brown (10 YR 3.5/3 m) clay; moderate, fine, sub-angular blocky; firm, very hard, sticky, plastic

C 23 to 50+ cm; dark brown (10 YR 3/3 m) clay, amorphous; firm, very hard, sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	3	295	L-	M-	5.4	0.2	L
15-30	0	2	396	L-	L+	5.5	0.2	L

LL-39

Location	:	NE 13-64-10-W4
Soil Classification	:	Gleyed Gray Luvisol
Parent Geologic Material	:	Clay loam till
Landform	:	Morainal
Surface Expression	:	Undulating; 3 to 9% slope
Drainage	:	Imperfect
Vegetation	:	Aspen/Cranberry

Soil Profile Description

L-H	8 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ah	0 to 3 cm; very dark grayish brown (10 YR 3/2 m) fine sandy loam; amorphous; very friable, slightly hard, non sticky, slightly plastic
Ae	3 to 8 cm; brown to pale brown (10 YR 5.5/3 m) loamy fine sand; amorphous; very friable, loose, non sticky, non plastic
AB	8 to 13 cm; brown (10 YR 5/3 m) loamy fine sand; amorphous; very friable, loose, non sticky, non plastic
Btgj	13 to 40 cm; brown to dark brown (10 YR 4/3 m) silty clay loam; many, fine, distinct, reddish brown mottles; very weak; fine, subangular blocky; friable, hard, slightly sticky, plastic
C	40 cm+; dark yellowish brown (10 YR 4/4 m) clay loam; amorphous; friable, hard, sticky, plastic

LL-40

Location	:	NE 14-64-10-W4
Soil Classification	:	Orthic Gray Luvisol
Parent Geologic Material	:	Silty clay till
Landform	:	Moraínal
Surface Expression	:	Hummocky; 6 to 15% slope
Drainage	:	Moderately well
Vegetation	:	Aspen/Hazelnut-Cranberry/Sarsaparilla

Soil Profile Description

L-H	10 to 0 cm; black (10 YR 2/1 m) semi-decomposed organic matter
Ae	0 to 5 cm; pale brown to very pale brown (10 YR 6.5/3 d) sand; single grain; loose, non sticky, non plastic
AB	5 to 10 cm; pale brown (10 YR 6/3 d) sand; single grain; loose, non sticky, non plastic
Bt	10 to 23 cm; brown to dark brown (10 YR 4/3 m) clay to silty clay; moderate, fine, subangular blocky; firm, very hard, sticky, plastic
C	23 to 45+ cm; dark brown (10 YR 3/3 m) silty clay; amorphous; firm, very hard, sticky, plastic

SOIL TEST RESULTS

Depth (cm)	Pounds per Acre (N)	(P)	(K)	(Na)	(S)	pH	Conductivity mmhos.	Organic Matter
0-15	0	9	138	L−	L+	5.2	0.1	L
15-30	0	4	232	L−	L+	4.7	0.1	L

Appendix B

Species List
Plot List
Klinka-Phelps Vegetation Program
Environmental Site Program
Environment, Vegetation and Summary Tables

SPECIES LIST

Code Name	Latin Name	Common Name
ABIE BAL	*Abies balsamea*	Balsam Fir
ACHI MIL	*Achillea millefolium*	Common Yarrow
ACHI SIB	*Achillea sibirica*	
ACTA RUB	*Actaea rubra*	Red Baneberry
AGRO SCA	*Agrostis scabra*	Tickle Grass
ALNU CRI	*Alnus crispa*	Green Alder
ALNU TEN	*Alnus tenuifolia*	River Alder
AMBL SER	*Amblystegium serpens*	
AMEL ALN	*Amelanchier alnifolia*	Saskatoon-berry
ANDR POL	*Andromedia polifolia*	Bog Rosemary
ANEM PAR	*Anemone parviflora*	
ANEM PAT	*Anemone patens*	Prairie Crocus
ANTE NEG	*Antennaria neglecta*	Pussy-toes
ARAL NUD	*Aralia nudicaulis*	Wild Sarsaparilla
ARCT UVA	*Arctostaphylos uva-ursi*	Common Bearberry
AREN LAT	*Arenaria lateriflora*	Sandwort
ASTE CIL	*Aster ciliolatus*	Lindley's Aster
ASTE CON	*Aster conspicuous*	Showy Aster
ASTE NES	*Aster hesperius*	Western Willow Aster
ASTE JUN	*Aster junciformis*	
ASTR FRI	*Astragalus frigidus*	Milk Vetch
ASTR OCC	*Astragalus occidentalis*	Milk Vetch
AULA PAL	*Aulacomnium palustre*	
BETU GLA	*Betula glandulosa*	Dwarf Birch
BETU PAP	*Betula papyrifera*	Paper Birch
BETU PUM	*Betula pumila*	Swamp Birch
BRAC SAL	*Brachythecium salebrosum*	
BROM PUM	*Bromus pumpellianus*	Northern Awnless Brome
BRYU PSE	*Bryum pseudotriquetum*	
CALA CAN	*Calamagrostis canadensis*	Marsh Reed Grass
CALA INE	*Calamagrostis inexpansa*	Northern Reed Grass
CALL GIG	*Calliergon giganteum*	
CALL TRI	*Calliergon trifarium*	
CALT PAL	*Caltha palustris*	Marsh Marigold
CAMP ROT	*Campanula rotundifolia*	Harebell
CAMP STE	*Campylium stellatum*	
CARE AQU	*Carex aquatilis*	Water sedge
CARE ATH	*Carex atherodes*	Sedge
CARE BRU	*Carex brunnescens*	Sedge
CARE CAP	*Carex capillaris*	Sedge
CARE CHO	*Carex chordorrhiza*	Sedge
CARE CON	*Carex concinna*	Sedge
CARE DEW	*Carex deweyana*	Sedge

Code Name	Latin Name	Common Name
CARE DIS	*Carex disperma*	Sedge
CARE GYN	*Carex gynocrates*	Sedge
CARE INT	*Carex interior*	Sedge
CARE LIM	*Carex limosa*	Sedge
CARE PAU	*Carex paupercula*	Sedge
CARE PEC	*Carex peckii*	Sedge
CARE PRA	*Carex prairea*	Sedge
CARE RIC	*Carex richardsonii*	Sedge
CARE ROS	*Carex rostrata*	Sedge
CARE TEN	*Carex tenuiflora*	Sedge
CARE VAG	*Carex vaginata*	Sedge
CHRY IOW	*Chrysoplenium iowense*	Golden Saxifrage
CICU BUL	*Cicuta bulbifera*	Water Hemlock
CICU DOU	*Cicuta douglasii*	Water Hemlock
CIRS ARV	*Cirsium arvense*	Canada Thistle
CLAD CEN	*Cladonia cenotea*	
CLAD COC	*Cladonia coccifera*	
CLAD CON	*Cladonia coniocraea*	
CLAD COR	*Cladonia cornuta*	
CLAD CRI	*Cladonia crispata*	
CLAD DEF	*Cladonia deformis*	
CLAD FIM	*Cladonia fimbriata*	
CLAD FUR	*Cladonia furcata*	
CLAD GRA	*Cladonia gracilis*	
CLAD MIT	*Cladina mitis*	Reindeer Lichen
CLAD MUL	*Cladonia multiformis*	
CLAD PYS	*Cladonia pysidata*	
CLAD UNC	*Cladonia uncialis*	
CLAD VER	*Cladonia verticillata*	
CLIM DEN	*Climacium dendroides*	
COMA PAL	*Comandra pallida*	Bastard Toad-flax
CORA TRI	*Corallorhiza trifida*	Pale Coral-root
CORN CAN	*Cornus canadensis*	Bunchberry
CORN STO	*Cornus stolonifera*	Dogwood
CORY COR	*Corylus cornuta*	Beaked Hazelnut
DESC CAE	*Deschampsia caespitosa*	Hair Grass
DICR FRA	*Dicranum fragilifolium*	
DICR POL	*Dicranum polysetum*	
DICR UND	*Dicranum undulatum*	
DISP TRA	*Disporum trachycarpum*	Fairy-bells
DREP ADU	*Drepanocladus aduncus*	
DREP REV	*Drepanocladus revolvens*	
DREP UNC	*Drepanocladus unciniatus*	
DREP VER	*Drepanocladus vernicosus*	
DROS ROT	*Drosera rotundifolia*	Round-leaved Sundew
ELYM INN	*Elymus innovatus*	Hairy Wild Rye
EPIL ANG	*Epilobium angustifolium*	Fireweed
EPIL GLA	*Epilobium glandulosa*	Willow-herb

Code Name	Latin Name	Common Name
EQUI ARV	*Equisetum arvense*	Common Horsetail
EQUI GLU	*Equisetum fluviatile*	Swamp Horsetail
EQUI SCI	*Equisetum scirpoides*	Horsetail
EQUI SYL	*Equisetum sylvaticum*	Woodland Horsetail
ERIG GLA	*Erigeron glabellus*	Fleabane
ERIG PHI	*Erigeron philadelphicus*	Fleabane
ERIO CHA	*Eriophorum chamissonis*	Cotton Grass
ERIO VIR	*Eriophorum viridi-carinatum*	Cotton Grass
EURH PUL	*Eurhynchium pulchellum*	
FEST SAX	*Festuca saximontana*	Fescue
FRAG VIR	*Fragaria virginiana*	Wild Strawberry
GALI BOR	*Galium boreale*	Northern Bedstraw
GALI LAB	*Galium labradoricum*	Bedstraw
GALI TRI	*Galium triflorum*	Sweet-scented Bedstraw
GENT AMA	*Gentianella amarella*	Felwort
GEOC LIV	*Geocaulon lividum*	Northern Comandra
GEUM ALL	*Geum allepicum*	Yellow Avens
GEUM MAL	*Geum macrophyllum*	Yellow Avens
GOOD REP	*Goodyera repens*	Rattlesnake Plantain
HABE HYP	*Habenaria hyperborea*	Northern Green Orchid
HALE DEF	*Halena defleza*	Spurred Gentian
HAPL MIC	*Haplocladium microphyllum*	
HEDY ALP	*Hedysarum alpinum*	
HERA LAN	*Heracleum lanatum*	Cow Parsnip
HIER CAN	*Hieracium canadense*	Canada Hawkweed
HIER ODO	*Hierchloe odorata*	Sweet Grass
HYLO SPL	*Hylocomium splendens*	Stair-step Moss
HYPO PHY	*Hypopymnia physodes*	
HYPN PRA	*Hypnum pratense*	
JUNC BAL	*Juncus balticus*	Wire Rush
KALM POL	*Kalmia polifolia*	Mountain Laurel
LARI LAR	*Larix laricina*	Tamarack
LATH OCH	*Lathyrus ochroleucus*	Cream-colored Vetchling
LESC RAD	*Lescurae radicosa*	
LEDU GRO	*Ledum groenlandicum*	Labrador Tea
LILI PHI	*Lilium philadelphicum*	Western Wood Lily
LINN BOR	*Linnaea borealis*	Twinflower
LONI DIO	*Lonicera dioica*	Twining Honysuckle
LONI INV	*Lonicera involucrata*	Bracted Honeysuckle
LONI VIL	*Lonicera villosa*	Fly Honeysuckle
LYCO ANN	*Lycopodium annotinum*	Stiff Club-moss
LYCO COM	*Lycopodium complanatum*	Ground Cedar
LYCO OBS	*Lycopodium obscurum*	Ground Pine

Code Name	Latin Name	Common Name
MAIA CAN	*Maianthemum canadense*	Wild Lily-of-the-Valley
MEES TRI	*Meesia triquetra*	
MENT ARV	*Mentha arvensis*	Wild Mint
MENV TRI	*Menyanthes trifoliata*	Buckbean
MERT PAN	*Mertensia paniculata*	Tall Mertensia
MITE NUD	*Mitella nuda*	Bishop's cap
MUHL GLO	*Muhlenbergia glomerata*	Bog Muhly
ONCO WAH	*Oncophorus wahlengergii*	
ORCH ROT	*Orchis rotundifolia*	Round-leaved Orchid
ORYZ ASP	*Oryzopsis asperifolia*	Rice Grass
ORYZ PUN	*Oryzopsis pungens*	Rice Grass
OSMO DEP	*Osmorhiza depauperata*	Sweet Cicely
OXYC MIC	*Oxycoccus microcarpus*	Small Bog Cranberry
PARN DAL	*Parnassia palustris*	Grass-of-Parnassus
PELT APH	*Peltigera aphthosa*	
PELT CAN	*Peltigera canina*	Dog Lichen
PELT MAL	*Peltigera malacea*	
PELT POL	*Peltigera polydactyla*	
PENS ALB	*Penstemon albidus*	White Beard-tongue
PETA PAL	*Petasites palmatus*	Palmate-leaved Coltsfoot
PETA SAG	*Petasites sagittatus*	Arrow-leaved Coltsfoot
PHAC FRA	*Phacelia franklinii*	Scorpion Weed
PICE GLA	*Picea glauca*	White Spruce
PICE MAR	*Picea mariana*	Black Spruce
PINU BAN	*Pinus banksiana*	Jack Pine
PLAG CUS	*Plagiomnium cuspidatum*	
PLAG DRU	*Plagiomnium drummondii*	
PLAG ELL	*Plagiomnium ellipticum*	
PLEU SCH	*Pleurozium schreberi*	Schreber's Moss
POA PAL	*Poa palustris*	Fowl Bluegrass
POHL CRU	*Pohlia cruda*	
POLY AMP	*Polygonum amphibium*	Water Smartweed
POLY JUN	*Polytricum juniperinum*	Hair Cap Moss
POLY LAP	*Polygonum lapathifolium*	Smartweed
POLY PAU	*Polygala pauciflora*	Milkwort
POLY STR	*Polytricum strictum*	Hair Cap Moss
POPU BAL	*Populus balsamifera*	Balsam Poplar
POPU TRE	*Populus tremuloides*	Aspen
POTE PAL	*Potentilla palustris*	Marsh Cinquefoil
POTE RIV	*Potentilla rivalis*	Cinquefoil
POTE TRI	*Potentilla tridenta*	Three-toothed Cinquefoil
PRUN PEN	*Prunus pensylvanica*	Pin Cherry
PRUN VIR	*Prunus virginiana*	Choke Cherry
PTIL CRI	*Ptilium crista-castrensis*	Knight's Plume Moss
PTIL PUL	*Ptilidium pulcherrimum*	
PYLA POL	*Pylasiella polyantha*	
PYRO ASA	*Pyrola asarifolia*	Common Pink Wintergreen
PYRO SEC	*Pyrola secunda*	One-sided Wintergreen

Code Name	Latin Name	Common Name
RHAM ALN	*Rhamnus alnifolia*	Buckthorn
RHIZ PSE	*Rhizomnium pseudopunctatum*	
RIBE AME	*Ribes americanum*	Wild Black Currant
RIBE GLA	*Ribes glandulosum*	Skunk Currant
RIBE HIR	*Ribes hirtellum*	Wild Gooseberry
RIBE LAC	*Ribes lacustre*	Bristly Black Currant
RIBE OXY	*Ribes oxycanthoides*	Wild Gooseberry
RIBE TRI	*Ribes triste*	Wild Red Currant
RORR ISL	*Rorippa islandica*	Yellow Cress
ROSA ACI	*Rosa acicularis*	Prickly Rose
RUBU ACA	*Rubus acaulis*	Dwarf Raspberry
RUBU CHA	*Rubus chamaemorus*	Cloudberry
RUBU PUB	*Rubus pubescens*	Dewberry
RUBU STR	*Rubus strigosus*	Wild Red Raspberry
RUME OCC	*Rumex occidentalis*	Western Dock
SALI BEB	*Salix bebbiana*	Beaked Willow
SALI CAN	*Salix candida*	Hoary Willow
SALI LAS	*Salix lasiandra*	Willow
SALI MYR	*Salix myrtillifolia*	Willow
SALI PED	*Salix pedicellaris*	Glaucous Bog Willow
SALI PLA	*Salix planifolia*	Willow
SANI MAR	*Sanicula marilandica*	Snake-root
SARR PUR	*Sarracenia purpurescens*	Pitcher-plant
SCHI PUR	*Schizachne purpurascens*	False Melic
SCOR TUR	*Scorpidium turgescens*	
SCUT GAL	*Scutellaria gallericulata*	Common Skullcap
SHEP CAN	*Shepherdia canadensis*	Buffalo-berry
SMIL STE	*Smilacina stellata*	Star-flowered Solomon's-sea'
SMIL TRI	*Smilacina trifolia*	Three-leaved Solomon's-seal
SOLI DEC	*Solidago decumbens*	Goldenrod
SOLI GIG	*Solidago gigantea*	Goldenrod
SPHA ANG	*Sphagnum angustifolium*	Sphagnum Moss
SPHA CUS	*Sphagnum cuspidatum*	Sphagnum Moss
SPHA NEM	*Sphagnum nemoreum*	Sphagnum Moss
SPHA RUS	*Sphagnum russowii*	Sphagnum Moss
SPHA WAR	*Sphagnum warnstorfii*	Sphagnum Moss
SPIR ROM	*Spiranthes romanzoffiana*	Ladies'-tresses
STEL LON	*Stellaria longipes*	Long-stalked Chickweed
STEL MED	*Stellaria media*	Common Chickweed
SYMP ALB	*Symphoricarpos alba*	Snowberry
TARA OFF	*Taraxacum officinale*	Dandelion
THAL VEN	*Thalictrum venulosum*	Veiny Meadow Rue
TOFI GLU	*Tofieldia glutinosa*	False Asphodel
TOME NIT	*Tomenthypnum nitens*	
TRIE BOR	*Trientalis borealis*	Star-flower
TRIG MAR	*Triglochin maritima*	Arrow-grass
TROL ALB	*Trollius albiflorus*	Globe-flower

Code Name	Latin Name	Common Name
VACC CAE	*Vaccinium caespitosum*	Dwarf Bilberry
VACC MYR	*Vaccinium myrtilloides*	Blueberry
VACC VIT	*Vaccinium vitis-idaea*	Bog Cranberry
VALE SEP	*Valeriana septentrionalis*	Valerian
VIBU EDU	*Viburnum edule*	Low-bush Cranberry
VICI AME	*Vicia americana*	Wild Vetch
VIOL ADU	*Viola adunca*	Early Blue Violet
VIOL RUG	*Viola rugulosa*	Western Canada Violet
ZIZI APT	*Zizia aptera*	Meadow Parsnip

FORAGE PLOT NO.	COMPUTER NO.	SOIL PLOT NO.	DOMINANT SPECIES	COMPLETE OR INCOMPLETE
1	204278	1	Aspen/Willow/Cranberry/Fireweed	C
2	204279		Pine/Blueberry/Bearberry/Lichen	C
3	204280	3	Pine-Aspen/Alder/Blueberry/Bearberry	C
4	204281	5	Aspen-Pine/Alder/Blueberry/Bearberry	C
5	204282	12	Aspen/Alder/Cranberry/Bunchberry	C
6	204283	13	Pine/Alder/Bunchberry/Twinflower/Feathermoss	C
7	204314		Aspen/Willow/Rye	I
8	204316	15	Pine-White Spruce-Aspen/Buffaloberry/Bearberry	I
9	204315	14	Aspen-White Spruce/Willow/Saskatoon/Blueberry/Rye	C
10	204318	19	Pine-Black Spruce/Bog Cranberry/Lichen	C
11	204319	20	Aspen-White Spruce/Cranberry/Feathermoss	I
12	204320	21	Aspen-White Spruce/Cranberry/Rye	I
13	204321	22	White Spruce/Feathermoss	C
14	204322	24	Aspen/Willow/Fireweed	C
15	204326	25	Aspen/Willow/Rose-Hazelnut/Sarsaparilla	C
16	204325	26	Aspen/Willow/Rose-Cranberry/Sarsaparilla	C
17	204323	27	Aspen/Rose/Rye	C
18	204324	28	Aspen/Willow/Cranberry/Star-flower-Bunchberry	I
19	204327	29	Aspen/Hazelnut/Lily-of-the-Valley	I
20	204328	30	Aspen/Cranberry/Sarsaparilla-Fireweed	I
21	204329	31	Aspen/Willow/Cranberry	C
22	204330	32	Aspen-Poplar/Hazelnut/Fireweed-Sarsaparilla	C
23	204331	33	Aspen/Alder-Saskatoon/Sarsaparilla/Lily-of-the-Valley	I
24	204332	34	Poplar-White Spruce/Alder/Cranberry/Sarsaparilla	I
25	204333	35	Poplar-White Spruce/Alder/Fireweed	C
26	204334	36	Aspen-Poplar-White Spruce/Fireweed-Sarsaparilla	C
27	204335	37	Aspen-White Spruce/Cranberry/Sarsaparilla	C
28	204336	38	Poplar-White Spruce/Cranberry/Sarsaparilla	C
29	204337	39	Aspen/Cranberry	I
30	204338	40	Aspen/Hazelnut-Cranberry/Sarsaparilla	C
31	204339	4	Pine/Alder/Blueberry/Bog Cranberry/Lichen	C
32	204340		Black Spruce/Labrador Tea/Moss	I
33	204343		Willow/Sedge	C
34	204344		Aspen-Poplar-White Spruce/Willow/Cranberry/Twinflower	C
35	204341	6	Black Spruce/Moss-Lichen	C
36	204342	7	Aspen-Pine/Alder/Blueberry/Fireweed	C
37	204317	18	Aspen/Willow/Rose/Sarsaparilla-Fireweed	C
38	204345		Aspen/Alder/Cranberry/Twinflower	C
39	204347		Aspen/Cranberry/Fireweed/Dewberry	C
40	204348		Tamarack-Black Spruce/Moss	C
41	204349		Pine-Black Spruce/Labrador Tea/Moss-Lichen	C
42	204275		Pine-Aspen/Alder/Bog Cranberry	C
43	207401		Willow/Sedge-Reed Grass	C
44	204346		Aspen/Rose/Blueberry/Bunchberry	C
45	204276		Pine/Bearberry-Bog Cranberry/Lichen	C
46	204277		Pine/Blueberry/Bearberry/Lichen	C
47	207402	8	Aspen/Alder/Blueberry/Sarsaparilla	C
48	207403		Pine-Aspen/Labrador Tea/Blueberry/Bunchberry	C
49	207404		Black Spruce/Labrador Tea/Moss-Lichen	C
50	207406		Aspen/Willow-Alder/Cranberry/Fireweed	C
51	207405		Black Spruce/Labrador Tea/Bog Cranberry/Moss-Lichen	C
52	207407		White Spruce-Poplar/Alder/Cranberry/Sarsaparilla	C
53	207408		Aspen-Poplar-White Spruce/Cranberry/Fireweed	C
54	207409		White Spruce-Birch/no dominant understory species	C
55	207410		Aspen-Poplar/Cranberry/Sarsaparilla/Twinflower	C
56	207411		Aspen-Poplar/Rose-Cranberry/Fireweed	C
57	207412		Aspen/Sarsaparilla	C
58	207413		Black Spruce/Labrador Tea/Moss-Lichen	C
59	207414		Tamarack/Willow/Birch/Sedge/Moss	C
60	207415		Pine-White Spruce/Alder/Twinflower/Feathermoss	C
61	207416		Pine-Aspen-White Spruce/Alder/Feathermoss	C
62	207417		Pine/Alder/Bunchberry/Twinflower	C
63	207418		Pine/Bog Cranberry/Lichen	C
64	207419		Pine/Alder/Blueberry/Bearberry/Lichen	C
65	207420		Black Spruce-Tamarack/Labrador Tea/Moss-Lichen	C
66	207421		Black Spruce/Labrador Tea/Moss	C
67	207422		Black Spruce/Labrador Tea/Moss-Lichen	C
68	207423		Pine/Alder/Feathermoss	C
69	207424		Pine-Aspen/Labrador Tea/Blueberry/Bog Cranberry/Feathermoss	C
70	207425		Pine-Black Spruce/Labrador Tea/Moss-Lichen	C
71	207426		Black Spruce-Tamarack/Moss	C
72	207427		Black Spruce/Labrador Tea/Moss-Lichen	C
73	207428		Aspen/ dominant understory species	C
74	207429		Black Spruce-Tamarack/Labrador Tea/Moss-Lichen	C
75	207430		Aspen-Poplar/Saskatoon/Sarsaparilla	C
76	207431		Black Spruce/Labrador Tea/Moss-Lichen	C

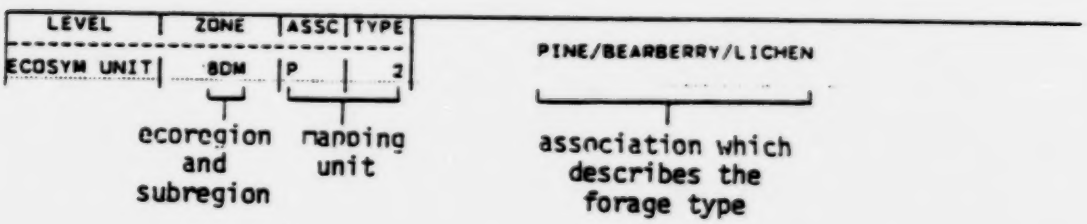
FORAGE PLOT NO.	COMPUTER NO.	SOIL PLOT NO.	DOMINANT SPECIES	COMPLETE OR INCOMPLETE
77	207432		Aspen-Poplar/Cranberry/Sarsaparilla	C
78	207433		Pine/Alder/Bearberry-Bog Cranberry/Rye	C
79	207434		Tamarack/Birch/Sedge/Moss	C
80	207435		Pine/Alder/Blueberry/Bog Cranberry-Twinflower	C
81	207436		Willow/Sedge/Moss	C
82	207437		Pine/Alder/Labrador Tea	C
83	207438		Birch/Sedge/Moss	C
84	207439		Pine-Aspen/Bog Cranberry	C
85	207440		Birch/Sedge/Moss	C
86	207441		Willow/Sedge/Moss	C
87	207442		Birch/Sedge/Moss	C
88	207443		Black Spruce/Labrador Tea/Moss-Lichen	C
89	207444		Tamarack/Birch/Solomon's-seal/Moss	C
90	207445		Tamarack/Birch/Moss	C
91	207448		Poplar-Aspen/Alder/Coltsfoot-Strawberry	C
92	207449		Aspen-Poplar/Rose/Bunchberry/Dewberry	C
93	207450	2	Pine/Bearberry/Lichen	C
94	207451		Birch/Sedge	C
95	207452		Tamarack/Sedge/Moss	C
96	207453		Pine-Black Spruce/Labrador Tea/Bog Cranberry/Lichen	C
97	207454	17	Aspen-White Spruce/Hazelnut/Fireweed/Violet	C
98	207455		Aspen/Pin Cherry/Cranberry	C
99	207456	23	Aspen-White Spruce/Cranberry/Sarsaparilla	C
100	207457		White Spruce/Feathermoss	C
101	207458		White Spruce/Feathermoss	C
102	207459		Aspen-White Spruce/Cranberry/Fireweed-Sarsaparilla	C
103	207460		Tamarack/Sedge/Moss	C
104	207461		Aspen-White Spruce/Willow/Blueberry/Twinflower	C
105	207462		Poplar/Willow/Reed Grass	C
106	207463		Pine-White Spruce/Blueberry	C
107	207464		White Spruce/Feathermoss	C
108	207465		Aspen-White Spruce-Pine/Blueberry/Bearberry	C
109	207466		Aspen-Poplar/Willow/Meadow Rue-Coltsfoot	C
110	207467		Poplar/Willow/Dogwood/Reed Grass	C
111	207468		Aspen/Alder/Blueberry/Rye	C
112	207469		Pine/Bearberry/Lichen	C
113	207470		Aspen/Pin Cherry	C
114	204623		White Spruce-Aspen/Cranberry/Twinflower	C
		9	No data for vegetation	I
		10	No data for vegetation	I
		11	Aspen/Alder/Cranberry/Bunchberry	I
		16	Aspen-Pine-White Spruce/Alder/Bog Cranberry-Bearberry	I

KLINKA-PHELPS VEGETATION PROGRAM

This is a FORTRAN program written by Susan Phelps to produce vegetation and summary tables from a file of releve data. It was developed for the Research Branch, B.C. Ministry of Forests and revised for the Alberta Forest Service. The explanation of the tables generated by this program has been split into two parts, the vegetation tables and the summary tables.

Vegetation Tables

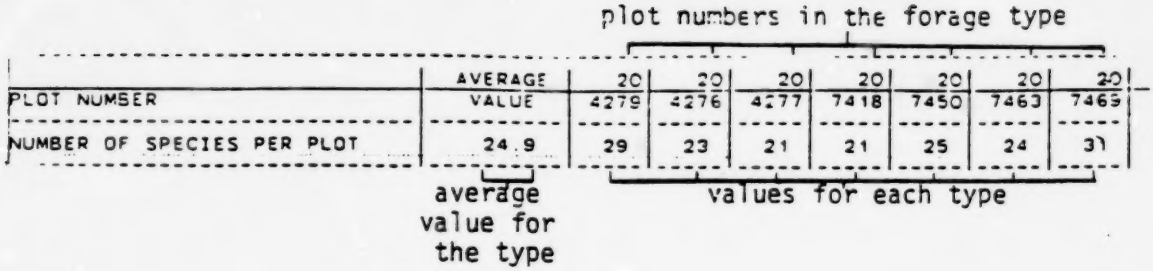
The vegetation tables summarize and average the plots within each forage type. This part of the program essentially collects and prints the percent cover and vigor for each species in each layer of every plot. An average value for percent cover (Mean Cover) and a percent frequency of occurrence (Presence) is given for each species, layer by layer, within each forage type. Labelled excerpts from a vegetation table are as follows.

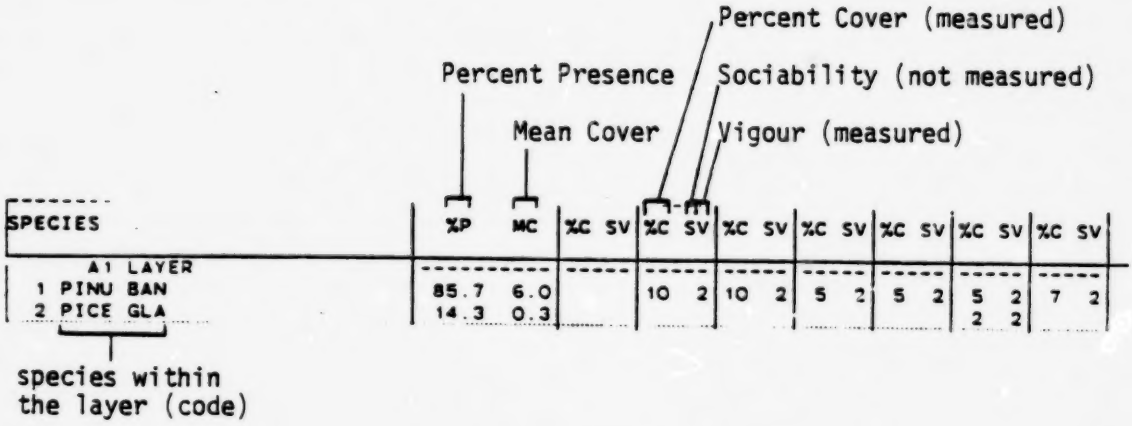


Ecoregion: derived from Ecoregions of Alberta (Strong and Leggat)

Mapping Unit: as per map

Association: arrived at using a minimum of 80% presence and 10% mean cover


plot numbers in the forage type
AVERAGE VALUE
20 20 20 20 20 20 20
PLOT NUMBER
4279 4276 4277 7418 7450 7463 7469
NUMBER OF SPECIES PER PLOT
24.9
29 23 21 21 25 24 31
average value for the type
values for each type


Percent Cover (measured)
Percent Presence
Sociability (not measured)
Mean Cover
Vigour (measured)
SPECIES
%P MC %C SV %C SV %C SV %C SV %C SV %C SV
A1 LAYER
1 PINU BAN 85.7 6.0 10 2 10 2 5 2 5 2 5 2 7 2
2 PICE GLA 14.3 0.3 2 2
species within the layer (code)

Layers:

- A_1 - dominant trees
- A_2 - main canopy
- A_3 - suppressed and intermediate trees
- B_1 - tall shrubs
- B_2 - medium shrubs
- C - forbs
- D - mosses and lichens
- Ex - grasses
- El - low shrubs

%P: Percent Presence

: ranges from greater than 0 to a maximum of 100 (present in all plots)

= no. of plots that species is present in ÷ total no. of plots for the type x 100

= percent frequency

MC: Mean Cover

: ranges from greater than 0 to a maximum of 100 (total cover in all plots)

= total of cover values for each plot - total no. of plots for the type

%C: Percent Cover

: ranges from 0 to 100 (not present in plot to total cover)

: measured value

S: sociability

: not measured

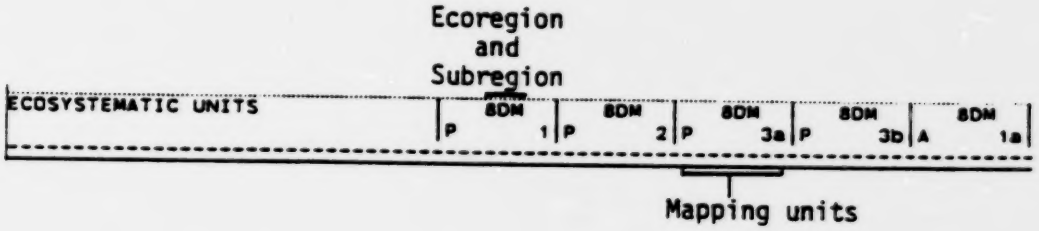
V: Vigour

: 0 = dead
1 = poor
2 = fair
3 = good
4 = excellent

Summary Tables

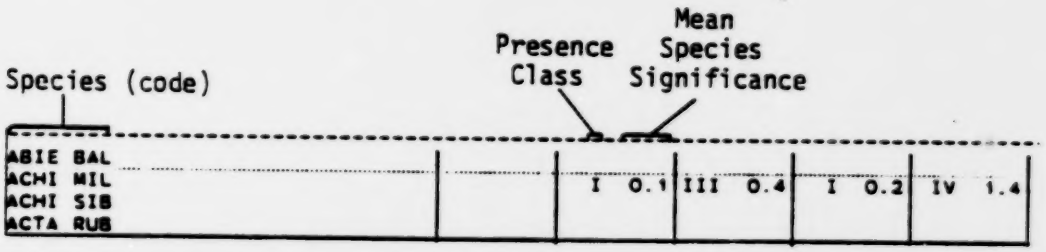
These tables constitute a comparison between the forage types determined by the vegetation tables. This part of the program takes the Mean Cover (MC) and Percent Presence (%P) for each type and lists them species by species alphabetically. Mean Cover has been renamed Mean

Species Significance and the Percent Presence value has been converted to a Presence Class. Excerpts are as follows.



Ecoregion: the same as the vegetation tables

Mapping Unit: the same as the vegetation tables



Species: all species present in the study area listed alphabetically by computer code

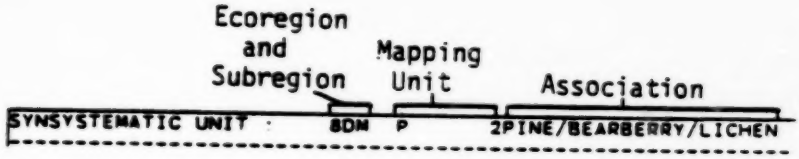
Presence Class: percent presence

Mean Species Significance: calculated using Percent Presence as follows

Percent Presence	Mean Species Significance
Not present in type	I
Greater than 0% to 20%	II
Greater than 20% to 40%	III - significant species
Greater than 40% to 60%	IV, V - major and minor species
Greater than 60% to 80%	
Greater than 80% to 100%	

ENVIRONMENTAL SITE PROGRAM

This program presents the collected site data plus other parameters determined to be useful in tabular form. Each environmental site table corresponds to a forage type and a vegetation table. Excerpts are as follows:



Ecoregion: same a previously defined

Mapping Unit: same as previously defined

Association: same as previously defined

Ecoregion: same as previously defined

The data to follow includes environment data

ENVIRONMENT

	Mean Value	Value Per Plot
ELEVATION(M)	600.0	600
SLOPE GRADIENT(%)	2.3	001
ASPECT		060
	Mean not Applicable	

Elevation: an arbitrary value of 600 M was assigned to the area

Slope Gradient: ranges from 0%

Aspect: ranges from 1% to 359%
999 = flat area/crest of hill

	Mean Value	Value Per Plot
SOIL SUBGROUP		E
SOIL GREATGROUP		EB
TEXTURE & PARENT MATERIAL		S GF
DRAINAGE		R
ENV MOISTURE REGIME		X
FOREST COVER-HT & DENSITY		B1
FOREST COVER-SPECIES		P A
BIOMASS-FORBS(KG/HA)	16.9	40
BIOMASS-GRASSES(KG/HA)	36.7	88
CLIMAX		SB
BROWSE(KG/HA)		0
SOIL PLOT NUMBER		

Soil Subgroup
Soil Greatgroup
Texture & Parent Material
} from PLC Lakeland map

Drainage:
R - rapid
W - well
MW - moderately well
I - imperfectly
P - poorly
VP - very poorly

Environmental Moisture Regime:
VX - very xeric
X - xeric
SX - subxeric
SM - submesic
M - mesic
SH - subhygric
H - hygric
SW - subhydric
W - hydric

Forest Cover - Height & Density
Forest Cover - Species
} from Phase III Forest Cover map

Biomass - Forbs (kg/ha)
Biomass - Grasses (kg/ha)
Browse (kg/ha)
} measured biomass values

Climax: edaphic/climatic

Soil Plot Number: corresponding PLC plot numbers

The data to follow includes vegetation data

	Mean Value	Value Per Plot
AGE-DOMINANT (A1)	59.0	33
-MAIN CANOPY (A2)	41.7	31
-UNDERSTORY (A3)	29.1	29
HEIGHT(M)-A1	17.1	14
-A2	13.7	14
-A3	10.7	14
-B1	4.0	
-B2	1.5	
STRATA COVER(%)-A	30.0	15
-B	4.0	05
-C	29.3	35
-D	24.4	60
-EX	1.9	05
SURFACE SUBST(%)-ORGANIC	90.0	95
-MIN SOIL	2.0	01
-DEAD WOOD	9.4	04
-OPEN WATER	0.0	

Age - dominant (A1)
- main canopy (A2)
- understory (A3)

measured in years

Height (m) - A1
- A2
- A3
- B1
- B2

heights for these layers
plot data rounded off
measured in metres

Strata cover (%) - A
- B
- C
- D
-EX

plot data for these layers
sum may exceed 100% due to overlapping layers

Surface Substrate (%) - Organic (plant materials)
- Mineral soil
- Dead Wood
- Open Water

sum should be 100% - may be rounding errors

ENVIRONMENT-VEGETATION TABLES, PART 1

SYNSYSTEMATIC UNIT : 8DM P JPINE-BLACK SPRUCE/FEATHERMOSS

RESOURCE INVENTORY

TABLE 1

PLOT NUMBER	MEAN	20 4318	20 4349	20 7425	20 7453
ECOREGION		8DM	8DM	8DM	8DM
ENVIRONMENT :					
ELEVATION(M)	600.0	600	600	600	600
SLOPE GRADIENT(%)	1.3	001	002	001	001
ASPECT		193	104	140	114
SOIL SUBGROUP		E	E	E	E
SOIL GREATGROUP		EB	EB	EB	EB
TEXTURE & PARENT MATERIAL		S GF	S GF	S GF	S GF
DRAINAGE		R	R	R	R
ENV MOISTURE REGIME		X	SX	X	SX
FOREST COVER-HT & DENSITY		C2	C2	B1	C1
FOREST COVER-SPECIES		P SB	P	P SB	P LT
BIOMASS-FORBS(KG/HA)	1.4	1.2	.4	.4	3.6
BIOMASS-GRASSES(KG/HA)	1.6	.4	.1	.2	6.0
CLIMAX		SB	SB	SB	SB
BROWSE(KG/HA)		0	0	0	0
SOIL PLOT NUMBER		19			
VEGETATION :					
AGE-DOMINANT (A1)	59.3	57	33	40	107
-MAIN CANOPY (A2)	43.5	48			39
-UNDERSTORY (A3)	43.5	62	39	36	37
HEIGHT(M)-A1	18.3	24	10	13	26
-A2	16.0	22	9	9	24
-A3	12.3	15	7	7	20
-B1	4.5	4	4	5	5
-B2	1.7	2		2	1
STRATA COVER(%)-A	53.8	50	70	55	40
-B	12.5	10	20	15	05
-C	15.8	15	03	05	40
-D	60.0	95	65	70	10
-EX	2.0	01	01	01	05
SURFACE SUBST(%)-ORGANIC	92.8	99	80	93	99
-MIN SOIL	2.5	0	10	0	0
-DEAD WOOD	4.8	01	10	07	01
-OPEN WATER	0.0	0	0	0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	P	1

PINE-BLACK SPRUCE/FEATHERMOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4318		20 4349		20 7425		20 7453	
NUMBER OF SPECIES PER PLOT	25.8		22		27		25		29	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER										
1 PINU BAN	100.0	6.8	10	2	5	1	5	2	7	2
A2 LAYER										
PINU BAN	100.0	26.3	40	2	15	1	20	2	30	2
A3 LAYER										
2 PICE MAR	100.0	24.3	15	2	50	1	30	2	2	2
PINU BAN	75.0	3.8			5	2	5	2	5	2
3 POPU TRE	50.0	0.8	1	2					2	2
4 BETU PAP	25.0	0.3					1	2		
B1 LAYER										
PICE MAR	75.0	5.0	5	2	5	1	10	2		
POPU TRE	25.0	0.5							2	2
B2 LAYER										
5 ALNU CRI	25.0	0.5	2	1						
PICE MAR	25.0	0.5							2	2
C LAYER										
6 VACC VIT	100.0	6.3	8	2	1	1	1	2	15	2
7 VACC MYR	100.0	3.5	5	2	1	1	4	2	4	2
8 LINN BOR	100.0	3.0	3	2	1	1	1	2	7	2
9 CORN CAN	100.0	2.0	3	2	1	2	1	2	3	2
10 ARCT UVA	75.0	4.3	7	2			1	2	9	2
11 MAIA CAN	50.0	0.5			1		1	2		
12 POTE TRI	50.0	0.5			1	2	1	2		
13 TRIE BOR	25.0	0.5							2	2
14 ANTE NEG	25.0	0.3							1	2
15 ASTE CIL	25.0	0.3							1	2
16 CAMP ROT	25.0	0.3							1	2
17 EPIL ANG	25.0	0.3					1	2		
18 FRAG VIR	25.0	0.3							1	2
19 HIER CAN	25.0	0.3							1	2
20 PENS ALB	25.0	0.3	1	2						
21 PETA PAL	25.0	0.3			1	2				
D LAYER										
22 CLAD MIT	100.0	13.0	24	2	4	2	7	2	17	2
23 PLEU SCH	75.0	22.8			53	2	36	2	2	2
24 PTIL CRI	75.0	1.5	1	2	1	2	4	2		
25 POLY JUN	75.0	1.0	1	2	2	2			1	2
26 HYLO SPL	50.0	2.3			2	2	7	2		
27 CLAD GRA	50.0	0.8			1	2	2	2		
28 DICR POL	50.0	0.8			2	2	1	2		
29 PELT APH	25.0	2.5			10	2				
30 CLAD CRI	25.0	0.5							2	2
31 CLAD FUR	25.0	0.5			2	2				
32 CLAD DEF	25.0	0.3					1	2		
33 CLAD UNC	25.0	0.3			1	2				
34 EURH PUL	25.0	0.3	1	2						
35 PELT CAN	25.0	0.3			1	2				
36 PELT MAL	25.0	0.3	1	2						

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	P	1

PINE-BLACK SPRUCE/FEATHERMOSS

PRESENCE (XP), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
EDMONTON, ALBERTA
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TABLE 1 PAGE 2

	AVERAGE VALUE		20		20		20		20	
PLOT NUMBER			4318		4349		7425		7453	
NUMBER OF SPECIES PER PLOT	25.8		22		27		25		29	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV
37 PTIL PUL	25.0	0.3			1	2				
EX LAYER										
38 ELYM INN	50.0	1.5			1	1			5	2
39 ORYZ PUN	50.0	0.5					1	2	1	2
40 CARE RIC	25.0	0.3	1	2						
EL LAYER										
41 LEDU GRO	100.0	9.0	3	2	20	1	10	2	3	2
42 ROSA ACI	75.0	0.8	1	2			1	2	1	2
43 SHEP CAN	50.0	0.5	1	2					1	2
ALNU CRI	25.0	0.3					1	2		
44 LONI INV	25.0	0.3							1	2
45 LONI VIL	25.0	0.3			1	1				
PICE MAR	25.0	0.3							1	2
46 VIBU EDU	25.0	0.3	1	2						

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PLOT NUMBER	MEAN	20 4279	20 4276	20 4277	20 7418	20 7450	20 7463	20 7469
ECOREGION		8DM	8DM	8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :								
ELEVATION(M)	600.0	600	600	600	600	600	600	600
SLOPE GRADIENT(%)	2.3	001	004	001	007	001	001	001
ASPECT		066	236	161	060	133	275	124
SOIL SUBGROUP		E	E	E	E	E	D	D
SOIL GREATGROUP		EB	EB	EB	EB	EB	R	R
TEXTURE & PARENT MATERIAL		S GF	S GF	S GF	S GF	S GF	S GF	S GF
DRAINAGE		R	R	R	R	R	R	R
ENV MOISTURE REGIME		X	X	SX	X	X	SX	SX
FOREST COVER-HT & DENSITY		B1	A2	C2	C2	B1	A2	C1
FOREST COVER-SPECIES		P A	P	P	P	P A	P	P
BIOMASS-FORBS(KG/HA)	1.6	4.0	.4	.8	1.2	2.0	1.7	1.7
BIOMASS-GRASSES(KG/HA)	3.6	8.8	.2	.1	3.2	6.0	3.7	3.7
CLIMAX		P	P	P	P	P	P	P
BROWSE(KG/HA)		0	0	0	0	0	0	0
SOIL PLOT NUMBER						02		
VEGETATION :								
AGE-DOMINANT (A1)	63.3		93	41	40	32	125	49
-MAIN CANOPY (A2)	39.8	31	43	38				47
-UNDERSTORY (A3)	34.5		29					40
HEIGHT(M)-A1	17.1	14	14	21	16	12	23	20
-A2	13.7	14	8	13	14	11	18	18
-A3	10.7	14	6	12	12	8	13	10
-B1	4.0		3			5	4	4
-B2	1.5			2	1		1	2
STRATA COVER(%)-A	30.0	15	15	55	50	25	15	35
-B	4.0	05	05	02	02	02	07	05
-C	29.3	35	30	60	30	20	15	15
-D	24.4	60	40	15	40	01	05	10
-EX	1.9	05	01	01	01	02	02	01
SURFACE SUBST(%)-ORGANIC	90.0	95	90	85	90	95	85	90
-MIN SOIL	0.6	01	0	0	0	03	0	0
-DEAD WOOD	9.4	04	10	15	10	02	15	10
-OPEN WATER	0.0	0	0	0	0	0	0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	P	2

PINE/BEARBERRY/LICHEN

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
EDMONTON, ALBERTA
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PLOT NUMBER	AVERAGE VALUE		20 4279		20 4276		20 4277		20 7418		20 7450		20 7463		20 7469	
NUMBER OF SPECIES PER PLOT	24.9		29		23		21		21		25		24		31	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER																
1 PINU BAN	85.7	6.0			10	2	10	2	5	2	5	2	5	2	7	2
2 PICE GLA	14.3	0.3											2	2		
A2 LAYER																
PINU BAN	100.0	23.9	15	2	7	2	45	2	50	2	25	2	5	2	20	2
A3 LAYER																
PINU BAN	85.7	3.3			1	1	5	2	3	2	2	2	7	2	5	2
3 POPU TRE	14.3	0.7													5	2
B1 LAYER																
POPU TRE	28.6	0.9											5	2	1	2
PINU BAN	14.3	0.7			5	2										
B2 LAYER																
PICE GLA	57.1	0.9					1	2	1	2			2	2	2	2
4 ALNU CRI	14.3	0.3					2	2								
POPU TRE	14.3	0.1													1	2
C LAYER																
5 VACC VIT	100.0	14.9	2	1	7	2	55	2	34	2	3	2	1	2	2	2
6 ARCT UVA	100.0	9.6	20	2	6	2	5	2	6	2	28	2	1	2	1	2
7 VACC MYR	100.0	7.1	10	2	2	2	17	2	2	2	3	2	9	2	7	2
8 MAIA CAN	100.0	2.1	1	1	3	2	2	2	2	2	1	2	4	2	2	2
9 CAMP ROT	100.0	1.0	1	2	1	2	1	2	1	2	1	2	1	2	1	2
10 ANEM PAT	57.1	0.9	3	2					1	2	1	2			1	2
11 LINN BOR	57.1	0.6	1	1					1	2	1	2	1	2		
12 POTE TRI	57.1	0.6	1	2							1	2	1	2	1	2
13 HIER CAN	42.9	0.6	1	2	2	2									1	2
14 COMA PAL	42.9	0.4	1	1							1	2			1	2
15 VIOL ADU	42.9	0.4	1	1					1	2					1	2
16 CORN CAN	28.6	0.3					1	2					1	2		
17 GALI BOR	28.6	0.3	1	2							1	2				
18 PENS ALB	28.6	0.3	1	2			1	2								
19 SOLI DEC	28.6	0.3	1	2							1	2				
20 ERIG GLA	14.3	0.6														
21 ACHI MIL	14.3	0.1													4	2
22 ANTE NEG	14.3	0.1	1	2											1	2
23 ASTE CIL	14.9	0.1	1	1												
24 EPIL ANG	14.3	0.1							1	2						
25 FRAG VIR	14.3	0.1														
26 PHAC FRA	14.3	0.1	1	2											1	2
27 TRIE BOR	14.3	0.1					1	2								
D LAYER																
28 CLAD MIT	85.7	27.7	60	2	49	2			27	2	50	2	2	2	6	2
29 POLY JUN	71.4	2.1			10	2			1	2	1	2	1	2	2	2
30 CLAD GRA	71.4	1.4	1	2	5	2					1	2	2	2	1	2
31 CLAD FUR	57.1	0.7	1	2	1	1							2	2	1	2
32 PELT MAL	42.9	0.6			2	2			1	2					1	2
33 CLAD UNC	28.6	0.3			1	2			1	2						
34 DICR POL	28.6	0.3			1	2	1	2								
35 PLEU SCH	14.3	1.4					10	2								

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BOM	P	2

PINE/BEARBERRY/LICHEN

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
EDMONTON, ALBERTA
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TABLE 2 PAGE 2

PLOT NUMBER	AVERAGE VALUE		20 4279		20 4276		20 4277		20 7418		20 7450		20 7463		20 7469	
NUMBER OF SPECIES PER PLOT	24.9		29		23		21		21		25		24		31	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
36 CLAD COC	14.3	0.1									1	2				
37 CLAD DEF	14.3	0.1									1	2				
38 HYLO SPL	14.3	0.1					1	2								
39 PELT CAN	14.3	0.1									1	2				
40 PELT POL	14.3	0.1	1	2												
41 PTIL CRI	14.3	0.1					1	2								
EX LAYER																
42 ELYM INN	57.1	1.3	1	2			1	2					4	2	3	2
43 ORYZ PUN	57.1	1.1	3	2							2	2	1	2	2	2
44 ORYZ ASP	57.1	0.6	1	2	1	2	1	2	1	2						
45 CARE RIC	42.9	0.4	1	2	1	2							1	2		
46 CALA INE	14.3	0.1					1	2								
EL LAYER																
47 ROSA ACI	71.4	1.1			3	1	2	2	1	2	1	2			1	2
48 AMEL ALN	71.4	0.7	1	1	1	1			1	2	1	2			1	2
49 SHEP CAN	42.9	1.0	5	2							1	2	1	2		
50 SALI BEB	42.9	0.6									2	1	1	2	1	2
PICE GLA	28.6	0.9											5	2	1	2
ALNU CRI	28.6	0.3			1	1			1	2						
POPU TRE	14.3	0.3			2	1										
51 LEDU GRO	14.3	0.1	1	1												

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ENVIRONMENT-VEGETATION TABLES, PART 1

SYNSYSTEMATIC UNIT : 8DM P 3aPINE/ALDER/BLUEBERRY

RESOURCE INVENTORY

TABLE 3

PLOT NUMBER	MEAN	20 4280	20 4281	20 4339	20 4342	20 4275	20 7403	20 7419	20 7424	20 7433	20 7435	20 7437	20 7439
ECOREGION		8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :													
ELEVATION(M)	600.0	600	600	600	600	600	600	600	600	600	600	600	600
SLOPE GRADIENT(%)	5.2	004	003	002	002	001	000	010	005	022	003	005	005
ASPECT		276	240	337	122	067	999	086	170	075	314	274	174
SOIL SUBGROUP		E	E	E	E	E	BR	E	E	E	E	E	E
SOIL GREATGROUP		EB	EB	EB	EB	EB	GL	EB	EB	EB	EB	EB	EB
TEXTURE & PARENT MATERIAL		S GF	S GF	LSGF	S GF	S GF	S GF	S GF	S GF	S GF	S GF	S E	S GF
DRAINAGE		W	R	R	W	R	R	R	W	R	W	R	R
ENV MOISTURE REGIME		SX	SX	X	SM	SX	SX	SX	SM	SX	SX	X	SX
FOREST COVER-HT & DENSITY		B2	B1	B3	C2	C2	B1	C2	B1	C2	C1	B1	C1
FOREST COVER-SPECIES		P A	P A	P SW	A P	P	P A	P	P A	A P	P	P	P A
BIOMASS-FORBS(KG/HA)	8.4	6.4	9.6	2.8	8.0	2.8	8.8	2.4	9.2	7.6	8.8	2.4	3.2
BIOMASS-GRASSES(KG/HA)	7.9	2.8	8.8	2.4	6.8	.4	8.4	1.2	5.2	26.4	.4	.8	3.2
CLIMAX		SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
BROWSE(KG/HA)					0		13.7			0			
SOIL PLOT NUMBER		03	05	04	07	10							
VEGETATION :													
AGE-DOMINANT (A1)	53.7	44		89	68	35	42	47	40	63	40	60	63
-MAIN CANOPY (A2)	38.5	35	34	55	49		35	41	33	37	34	34	37
-UNDERSTORY (A3)	31.5	25		38									
HEIGHT(M)-A1	17.8	16	17	26	16	25	17	17	15	16	16	17	15
-A2	14.8	10	16	19	14	22	14	15	12	13	14	15	13
-A3	11.6	6	13	14	10	15	11	14	8	11	13	12	12
-B1	4.0	5	4	3	5	4	5	3	4		3	5	3
-B2	2.0	2	2	2	2	2	2		2	2	2	2	2
STRATA COVER(%)-A	48.1	40	25	25	75	30	40	45	45	50	60	67	75
-B	26.8	50	30	10	15	30	45	10	30	15	30	40	17
-C	45.4	05	85	75	80	15	40	35	65	35	15	30	65
-D	7.6	01	05	05	01	20	05	15	15	02	07	10	05
-EX	2.6	01	02	01	01	02	02	01	03	15	01	01	01
SURFACE SUBST(%)-ORGANIC	96.0	99	99	75	99	99	99	93	99	99	95	97	99
-MIN SOIL	0.4	0	0	05	0	0	0	0	0	0	0	0	0
-DEAD WOOD	3.6	01	01	20	01	01	01	07	01	01	05	03	01
-OPEN WATER	0.0	0	0	0	0	0	0	0	0	0	0	0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	P	3a

PINE/ALDER/BLUEBERRY

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
EDMONTON, ALBERTA
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TABLE 3 PAGE 1

PLOT NUMBER	AVERAGE VALUE		20 4280		20 4281		20 4339		20 4342		20 4275		20 7403		20 7419		20 7424		20 7433		20 7435		20 7437		20 7439	
NUMBER OF SPECIES PER PLOT	30.7		29		35		24		29		31		38		21		36		37		32		30		26	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER																										
1 PINU BAN	91.7	7.1	5	2	2	2	7	2	20	2	5	2	10	2	10	2			12	2	5	2	3	2	6	2
2 POPU TRE	25.0	1.4							10	2	5	2									2	2				
A2 LAYER																										
PINU BAN	91.7	32.1	25	2	15	2	20	2			20	2	25	2	35	2	40	2	40	2	50	2	60	2	55	2
POPU TRE	50.0	6.3	15	2					45	2	5	2					5	2			2	2			3	2
3 BETU PAP	8.3	0.2			2	2															1	2				
4 LARI LAR	8.3	0.1																								
A3 LAYER																										
POPU TRE	91.7	4.6	5	2	5	2			10	2	5	2	5	2	1	2	5	2	5	2	1	2	5	2	8	1
PINU BAN	83.3	3.8			5	2			1	2	2	1	5	1	7	2	5	2	5	2	5	1	3	2	7	1
5 PICE GLA	16.7	0.5							5	2					1	2										
BETU PAP	8.3	0.4	5	2																						
6 PICE MAR	8.3	0.4											5	2												
LARI LAR	8.3	0.1																								
B1 LAYER																					1	2				
PICE GLA	41.7	1.3	2	2					5	2	2	2					5	2			1	2				
7 ALNU CRI	25.0	1.7					5	2							10	2									5	2
POPU TRE	25.0	1.6	7	1	10	2					2	2														
8 SALI BEB	16.7	0.2																			1	2	1	2		
PICE MAR	8.3	0.2											2	2												
BETU PAP	8.3	0.1	1	2																						
B2 LAYER																										
ALNU CRI	75.0	15.3	50	2	25	2	5	2	7	1	30	2					7	2	15	2	30	2			15	2
PICE GLA	25.0	0.8			3	2											5	2					2	2		
SALI BEB	25.0	0.4							1	1			3	2					1	2						
C LAYER																										
9 VACC VIT	100.0	16.7	2	2	8	2	34	2	7	2	32	2	13	2	14	2	19	2	16	2	6	2	3	2	46	2
10 VACC MYR	100.0	12.5	9	2	17	2	17	2	26	2	6	2	22	2	9	2	15	2	7	2	6	2	9	2	7	2
11 ARCT UVA	100.0	6.0	8	2	1	2	18	2	1	2	7	2	7	2	12	2	1	2	12	2	1	2	3	2	1	2
12 LINN BOR	100.0	5.4	6	2	2	2	1	1	1	2	9	2	22	2	1	2	2	2	7	2	9	2	3	2	2	2
13 MAIA CAN	100.0	1.9	2	2	4	2	4	2	1	2	2	2	1	2	1	2	1	2	2	2	2	2	1	2	2	2
14 EPIL ANG	83.3	2.5	3	2	7	2			13	2	1	2	1	2			1	2	1	2	1	2	1	2	1	2
15 CORN CAN	66.7	3.0	1	2					7	2			16	2			1	2	3	2	1	2	2	2	5	2
16 POTE TRI	58.3	0.6					1	2			1	2	1	2	1	2			1	2			1	2	1	2
17 VIOL ADU	58.3	0.6	1	2	1	2	1	2			1	2	1	2			1	2	1	2						
18 CAMP ROT	50.0	0.5					1	2					1	2							1	2	1	2	1	2
19 FRAG VIR	41.7	0.8			1	2							2	2			3	2	2	2	1	2				
20 ACHI MIL	41.7	0.4			1	2							1	2			1	2	1	2	1	2				
21 TRIE BOR	33.3	0.4	1	2					2	2									1	2	1	2				
22 PYRO ASA	33.3	0.3	1	2					1	2	1	2					1	2								
23 ASTE CIL	25.0	0.3							1	2							1	2	1	2					1	2
24 HIER CAN	25.0	0.3											1	2					1	2						
25 RUBU PUB	25.0	0.3			1	2			1	2									1	2						
26 HEDY ALP	16.7	0.3											2	2					1	2						
27 ANEM PAT	16.7	0.2					1	2											1	2						
28 ANTE NEG	16.7	0.2			1	2						2														
29 PENS ALB	16.7	0.2												2									1	2		

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	P	3a

PINE/ALDER/BLUEBERRY

PRESENCE (XP), MEAN COVER (MC), PERCENT COVER (XC), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4280		20 4281		20 4339		20 4342		20 4275		20 7403		20 7419		20 7424		20 7433		20 7435		20 7437		20 7439	
NUMBER OF SPECIES PER PLOT	30.7		29		35		24		29		31		38		21		36		37		32		30		26	
SPECIES	XP	MC	XC	SV	XC	SV	XC	SV	XC	SV	XC	SV	XC	SV	XC	SV	XC	SV	XC	SV	XC	SV	XC	SV	XC	SV
30 PETA PAL	16.7	0.2							1	2																
31 LATH OCH	8.3	0.3																	1	2						
32 GALI BOR	8.3	0.2											4	2												
33 GEOC LIV	8.3	0.2					2	1											2	2						
34 ARAL NUD	8.3	0.1					1	2																		
35 ASTE CON	8.3	0.1			1	2																				
36 ASTR OCC	8.3	0.1																								
37 EQUI ARV	8.3	0.1											1	2												
38 EQUI SCI	8.3	0.1																					1	2		
39 LYCO ANN	8.3	0.1																					1	2		
40 LYCO CON	8.3	0.1																			1	2				
41 MITE NUD	8.3	0.1																	1	2						
42 POLY PAU	8.3	0.1															1	2								
43 SOLI DEC	8.3	0.1											1	2												
44 VACC CAE	8.3	0.1													1	2										
D LAYER													1	2												
45 PLEU SCH	91.7	5.3	1	2	8	2	12	2	1	2	11	2	2	2			17	2	1	2	3	2	5	2	2	2
46 CLAD MIT	83.3	3.1	1	2	8	2	2	2			9	2	2	2	1	2	6	2	2	2			5	2	1	2
47 POLY JUN	66.7	0.7	1	2	1	2			1	2	1	2			1	2	1	2	1	2	1	2				
48 PTIL CRI	58.3	0.8			1	2					1	2	1	2			3	2	1	2	1	2	1	2		
49 CLAD FUR	41.7	0.5			1	2							1	2	1	2	1	2					2	2		
50 DICR POL	41.7	0.4			1	2					1	2					1	2			1	2	1	2		
51 PELT APH	16.7	0.5															1	2					5	1		
52 BRAC SAL	16.7	0.2	1	2					1	2																
53 PELT MAL	16.7	0.2			1	2									1	2										
54 HYLO SPL	8.3	0.2															2	2								
55 CLAD CRI	8.3	0.1	1	2																						
56 CLAD DEF	8.3	0.1																								
EX LAYER																									1	2
57 ELYM INN	75.0	2.3	1	2	1	2	1	1	2	2	1	2	4	2			1	2	15	2					1	2
58 CALA INE	58.3	0.8	1	2	2	2	1	2	2	2							1	2					1	2	1	2
59 ORYZ PUN	58.3	0.7			1	2					1	2	1	2	1	2	1	2	2	2	1	2				
60 CARE RIC	41.7	0.4			1	2	1	2					1	2	1	2							1	2		
61 ORYZ ASP	25.0	0.3					1	1			1	2														
62 FEST SAX	8.3	0.1											1	2							1	2				
63 SCHI PUR	8.3	0.1																	1	2						
EL LAYER																										
64 ROSA ACI	91.7	1.9	1	2	5	2	1	2	4	1	1	2	3	2	1	2	2	2	1	2			3	2	1	2
65 LEDU GRO	75.0	9.4			1	2			5	1	1	1	40	2			25	2	2	2	1	2	35	2	3	2
66 RUBU STR	41.7	0.4	1	2	1	2	1	2			1	1									1	2				
ALNU CRI	25.0	1.3			5	2															1	2	10	2		
67 AMEL ALN	25.0	0.3													1	2			1	2					1	2
PICE GLA	16.7	0.2									1	2							1	2						
68 BETU PUN	8.3	0.1															1	2					1	2		
69 LONI DIO	8.3	0.1																								
70 LONI VIL	8.3	0.1							1	2																
PICE MAR	8.3	0.1											1	2												
71 PRUN PEN	8.3	0.1					1	2																		

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	P	3a

PINE/ALDER/BLUEBERRY

PRESENCE (XP), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
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TABLE 3 PAGE 3

PLOT NUMBER	AVERAGE VALUE		20 4280		20 4281		20 4339		20 4342		20 4275		20 7403		20 7419		20 7424		20 7433		20 7435		20 7437		20 7439	
NUMBER OF SPECIES PER PLOT	30.7		29		35		24		28		31		38		21		36		37		32		30		26	
SPECIES	XP	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
72 PRUN VIR	8.3	0.1																							1	2
SALI BEB	8.3	0.1															1	2								
73 SHEP CAN	8.3	0.1											1	2												
74 VIBU EDU	8.3	0.1	1	2																						

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ENVIRONMENT-VEGETATION TABLES, PART 1 — RESOURCE INVENTORY

SYNSYSTEMATIC UNIT : 8DM P 36PINE/ALDER/TWINFLOWER/FEATHERMOSS — TABLE 4

PLOT NUMBER	MEAN	20 4283	20 7415	20 7416	20 7417	20 7423
ECOREGION		8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :						
ELEVATION(M)	600.0	600	600	600	600	600
SLOPE GRADIENT(%)	5.6	002	000	006	011	009
ASPECT		338	999	102	106	270
SOIL SUBGROUP		BR	BR	BR	BR	BR
SOIL GREATGROUP		GL	GL	GL	GL	GL
TEXTURE & PARENT MATERIAL		S GF	S GF	S GF	S GF	S GF
DRAINAGE		W	W	W	R	R
ENV MOISTURE REGIME		SM	SX	SM	SX	SX
FOREST COVER-HT & DENSITY		B2	C2	C2	C2	B3
FOREST COVER-SPECIES		P	P	P	P	P SB
BIOMASS-FORBS(KG/HA)	7.8	10.8	10.8	2.0	12.4	3.2
BIOMASS-GRASSES(KG/HA)	1.4	2.0	2.8	.4	.4	1.6
CLIMAX		SW	SW	SW	SW	SW
BROWSE(KG/HA)		0	0	0	0	0
SOIL PLOT NUMBER		13				
VEGETATION :						
AGE-DOMINANT (A1)	68.8	113	36	57	43	95
-MAIN CANOPY (A2)	58.6	83	39	34	45	82
-UNDERSTORY (A3)	47.3	83	39	32	35	
HEIGHT(M)-A1	21.8	28	18	19	20	24
-A2	19.6	26	16	15	18	23
-A3	16.0	23	9	11	15	22
-B1	3.8	5	3	4	3	
-B2	1.6	2	1	2	1	2
STRATA COVER(%)-A	55.0	60	45	45	65	60
-B	28.4	45	20	12	25	40
-C	28.0	10	35	30	60	15
-D	40.0	40	40	75	15	30
-EX	1.2	01	01	01	01	02
SURFACE SUBST(%)-ORGANIC	94.8	95	99	90	95	95
-MIN SOIL	0.0	0	0	0	0	0
-DEAD WOOD	5.2	05	01	10	05	05
-OPEN WATER	0.0	0	0	0	0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	P	3b

PINE/ALDER/TWINFLOWER/FEATHERMOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4283		20 7415		20 7416		20 7417		20 7423	
NUMBER OF SPECIES PER PLOT	32.0		27		38		36		31		28	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER												
1 PINU BAN	100.0	9.2	6	2	15	2	15	2	5	2	5	2
A2 LAYER												
PINU BAN	100.0	40.0	55	2	20	2	10	2	60	2	55	2
2 POPU TRE	40.0	3.0			5	2	10	2				
3 BETU PAP	20.0	1.0					5	2				
A3 LAYER												
PINU BAN	80.0	4.0	5	2	5	2			5	2	5	2
POPU TRE	60.0	1.4	1	2	5	2	1	1				
4 PICE GLA	40.0	4.0					15	2	5	2		
5 PICE MAR	40.0	4.0			15	2	5	2				
BETU PAP	20.0	1.0					5	1				
B1 LAYER												
PICE GLA	60.0	1.6			1	2	2	2	5	2		
6 ALNU CRI	40.0	5.0	5	2					20	2		
PICE MAR	20.0	0.2			1	2						
B2 LAYER												
ALNU CRI	80.0	22.0	45	2	15	1	10	2			40	2
PICE GLA	40.0	4.0			15	2			5	2		
7 SALI BEB	20.0	0.4			2	2						
PICE MAR	20.0	0.2			1	2						
C LAYER												
8 LINN BOR	100.0	14.4	17	2	18	2	2	2	26	2	9	2
9 CORN CAN	100.0	9.8	17	2	7	2	1	2	23	2	1	2
10 VACC MYR	100.0	2.8	1	2	1	2	3	2	7	2	2	2
11 MAIA CAN	100.0	1.8	1	2	1	2	3	2	1	2	3	2
12 VACC VIT	80.0	2.2	2	2			1	2	2	2	6	2
13 EPIL ANG	80.0	1.2	1	2	2	2	1	2	2	2		
14 TRIE BOR	80.0	0.8	1	2			1	2	1	2	1	2
15 FRAG VIR	60.0	0.8			2	2	1	2	1	2		
16 ARAL NUD	60.0	0.6	1	2					1	2	1	2
17 MITE NUD	60.0	0.6	1	2	1	2	1	2				
18 RUBU PUB	60.0	0.6			1	2	1	2	1	2		
19 LYCO ANN	40.0	0.4	1	2							1	2
20 PYRO ASA	40.0	0.4			1	2	1	2				
21 PYRO SEC	40.0	0.4	1	2			1	2				
22 VIOL ADU	40.0	0.4			1	2			1	2		
23 PETA PAL	20.0	0.8			4	2						
24 ACHI MIL	20.0	0.2			1	2						
25 ANTE NEG	20.0	0.2					1	2				
26 ARCT UVA	20.0	0.2									1	2
27 ASTE CIL	20.0	0.2			1	2						
28 CAMP ROT	20.0	0.2			1	2						
29 EQUI ARV	20.0	0.2			1	2						
30 GALI BOR	20.0	0.2			1	2						
31 GEOC LIV	20.0	0.2									1	2
32 HIER CAN	20.0	0.2									1	2
33 POLY PAU	20.0	0.2									1	2

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	P	3b

PINE/ALDER/TWINFLOWER/FEATHERMOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4283		20 7415		20 7416		20 7417		20 7423	
NUMBER OF SPECIES PER PLOT	32.0		27		38		36		31		28	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
34 VIOL RUG	20.0	0.2	1	2								
D LAYER												
35 PLEU SCH	100.0	23.8	22	2	13	2	48	2	2	2	34	2
36 HYLO SPL	100.0	3.0	1	2	4	2	5	2	1	2	4	2
37 PTIL CRI	80.0	5.2	23	2	1	2	1	2	1	2		
38 DICR POL	60.0	1.4					5	2	1	2	1	2
39 CLAD GRA	40.0	0.4					1	2	1	2		
40 CLAD MIT	40.0	0.4					1	2	1	2		
41 BRAC SAL	20.0	0.8			4	2						
42 CLAD COR	20.0	0.2	1	2								
43 CLAD FUR	20.0	0.2					1	2				
44 POLY JUN	20.0	0.2									1	2
EX LAYER												
45 CALA INE	80.0	1.0	2	2			1	2	1	2	1	2
46 ELYM INN	80.0	0.8			1	2	1	2	1	2	1	2
47 CARE PRA	20.0	0.2									1	2
48 ORYZ ASP	20.0	0.2					1	2				
49 ORYZ PUN	20.0	0.2									1	2
EL LAYER												
50 ROSA ACI	100.0	1.2	1	2	1	2	1	2	1	2	2	2
51 RUBU STR	80.0	0.8	1	2			1	2	1	2	1	2
PICE GLA	40.0	0.8			1	2			3	2		
ALNU CRI	40.0	0.6			1	2					2	2
52 LEDU GRO	40.0	0.4	1	2					1	2		
53 LONI DIO	40.0	0.4			1	2					1	2
54 LONI INV	40.0	0.4			1	2	1	2				
BETU PAP	20.0	0.2							1	2		
55 VIBU EDU	20.0	0.2	1	2								

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ENVIRONMENT-VEGETATION TABLES, PART 1

SYNSYSTEMATIC UNIT : 8DM A 1aASPEN/ALDER/TWINFLOWER

RESOURCE INVENTORY

TABLE 5

PLOT NUMBER	MEAN	20 4345	20 4346	20 7402	20 7448	20 7461	20 7468	20 7470
ECOREGION		8DM	8DM	8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :								
ELEVATION(M)	600.0	600	600	600	600	600	600	600
SLOPE GRADIENT(%)	7 1	004	015	001	001	002	012	015
ASPECT		170	105	036	090	205	104	110
SOIL SUBGROUP		BR	BR	E	E	O	O	O
SOIL GREATGROUP		GL	GL	EB	EB	R	R	R
TEXTURE & PARENT MATERIAL		S GF	S GF	LSGF	S GF	S U	S U	S U
	0.0							
	0.0							
DRAINAGE		W	W	W	MW	W	W	W
ENV MOISTURE REGIME		M	SM	SM	SH	SM	SM	SM
FOREST COVER-HT & DENSITY		C2	C2	C1	B1	B1	C1	C1
FOREST COVER-SPECIES		A	A	A	A	A	A	A
BIOMASS-FORBS(KG/HA)	17.3	18.0	30.4	6.8	14.4	15.2	10.0	26.8
BIOMASS-GRASSES(KG/HA)	7.3	2.0	11.6	.8	.4	11.6	18.8	6.0
CLIMAX		SW	SW	SW	SW	SW	SW	SW
BROWSE(KG/HA)			6.5	0				21.0
SOIL PLOT NUMBER				08				
VEGETATION :								
AGE-DOMINANT (A1)	50.0	50	50	50	50	50	50	50
-MAIN CANOPY (A2)								
-UNDERSTORY (A3)								
HEIGHT(M)-A1	17.7	20	22	21	10	16	13	22
-A2	15.1	18	17	19	8	13	12	19
-A3	11.3	16	12	17	6	10	9	9
-B1	4.2	5	5	4	3	4		4
-B2	2.0	2	2	2	2	2	2	2
STRATA COVER(%)-A	55.7	75	60	65	50	20	55	65
-B	27.1	20	20	50	25	35	20	20
-C	30.7	10	55	20	25	50	15	40
-D	2.1	01	01	01	05	01	05	01
-EX	2.9	01	05	02	01	05	05	01
SURFACE SUBST(%)-ORGANIC	97.9	95	98	98	98	99	98	99
-MIN SOIL	0.0	0	0	0	0	0	0	0
-DEAD WOOD	2.1	05	02	02	02	01	02	01
-OPEN WATER	0.0	0	0			0		

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	A	1a

ASPEN/ALDER/TWINFLOWER

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4345		20 4346		20 7402		20 7448		20 7461		20 7468		20 7470	
NUMBER OF SPECIES PER PLOT	39.4		28		41		29		57		43		32		46	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER																
1 POPU TRE	100.0	6.7	5	2	5	2	10	2	5	2	7	2	5	2	10	2
2 POPU BAL	14.3	0.7							5	2						
A2 LAYER																
POPU TRE	100.0	42.9	70	2	45	2	60	2	10	2	15	2	50	2	50	2
POPU BAL	14.3	4.3							30	2						
3 PICE GLA	14.3	0.3													2	2
A3 LAYER																
POPU TRE	100.0	4.9	5	2	5	2	10	2	5	2	2	2	2	1	5	2
PICE GLA	57.1	2.6	1	2	10	2			2	2					5	2
POPU BAL	14.3	0.7							5	2						
B1 LAYER																
PICE GLA	71.4	5.1	1	2	5	2			3	2	25	2			2	2
4 ALNU CRI	28.6	8.6					40	2	20	2						
5 SALI BEB	28.6	1.0			5	2			2	2						
B2 LAYER																
ALNU CRI	71.4	6.4	20	1	5	2	5	2					10	2	5	2
PICE GLA	57.1	2.1			1	2			2	2	10	2	2	2		
SALI BEB	42.9	1.9									10	2	2	2	1	2
6 ROSA ACI	28.6	2.4			15	2	2	2								
7 AMEL ALN	28.6	0.6											2	2	2	2
8 PRUN PEN	14.3	1.1													8	2
9 VIBU EDU	14.3	0.7					5	2								
10 LEDU GRO	14.3	0.1					1	2								
11 PRUN VIR	14.3	0.1			1	2										
C LAYER																
12 LINN BOR	100.0	9.6	12	2	7	2	8	2	3	2	33	2	1	2	3	2
13 MAIA CAN	100.0	3.4	2	2	5	2	2	2	1	2	2	2	7	2	5	2
14 CORN CAN	85.7	4.1	8	2	7	2	4	2	2	2	4	2			4	2
15 ASTE CIL	85.7	2.7	1	2	5	2			3	2	3	2	1	2	6	2
16 FRAG VIR	85.7	1.9			3	2	3	2	3	2	1	2	1	2	2	2
17 VACC MYR	71.4	7.4			19	2	10	2			8	2	11	2	4	2
18 PYRO ASA	71.4	2.4	4	2	4	2	1	2	1	2					7	2
19 EPIL ANG	71.4	1.7	1	2	4	2	1	2	2	2			4	2		
20 RUBU PUB	71.4	1.6	1	2	1	2	4	2	4	2					1	2
21 ACHI MIL	71.4	1.4			6	2			1	2	1	2	1	2	1	2
22 ARCT UVA	71.4	0.7			1	2			1	2	1	2	1	2	1	2
23 CAMP ROT	71.4	0.7			1	2	1	2			1	2	1	2	1	2
24 GALI BOR	71.4	0.7			1	2			1	2	1	2	1	2	1	2
25 VIOL ADU	71.4	0.7					1	2	1	2	1	2	1	2	1	2
26 LATH OCH	57.1	2.1			6	2					2	2	1	2	6	2
27 PETA PAL	57.1	1.6			1	2			6	2	3	2			1	2
28 EQUI ARV	57.1	0.9			3	2			1	2	1	2			1	2
29 PYRO SEC	57.1	0.7	1	2	2	2					1	2			1	2
30 TARA OFF	57.1	0.6	1	2					1	2	1	2			1	2
31 ARAL NUD	42.9	2.7			7	2	9	2							3	2
32 TRIE BOR	42.9	1.9	6	2			6	2	1	2						
33 VACC VIT	42.9	0.6	1	2							2	2	1	2		

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	A	1a

ASPEN/ALDER/TWINFLOWER

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4345		20 4346		20 7402		20 7448		20 7461		20 7468		20 7470	
NUMBER OF SPECIES PER PLOT	39.4		28		41		29		57		43		32		46	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
34 THAL VEN	42.9	0.4			1	2					1	2			1	2
35 VICI AME	42.9	0.4							1	2	1	2			1	2
36 VIOL RUG	42.9	0.4			1	2	1	2	1	2					1	2
37 ASTE CON	28.6	0.3			1	2										
38 MERT PAN	28.6	0.3							1	2					1	2
39 MITE NUD	14.3	0.9							6	2						
40 AREN LAT	14.3	0.1							1	2						
41 ASTR OCC	14.3	0.1							1	2						
42 CIRS ARV	14.3	0.1							1	2						
43 COMA PAL	14.3	0.1			1	2										
44 EQUI FLU	14.3	0.1											1	2		
45 EQUI SCI	14.3	0.1							1	2						
46 GENT AMA	14.3	0.1									1	2				
47 GEOC LIV	14.3	0.1									1	2				
48 HALE DEF	14.3	0.1									1	2				
49 HEDY ALP	14.3	0.1							1	2						
50 HIER CAN	14.3	0.1							1	2						
51 LILI PHI	14.3	0.1													1	2
52 LYCO ANN	14.3	0.1	1	2												
53 LYCO OBS	14.3	0.1	1	2												
54 POLY PAU	14.3	0.1							1	2						
55 POTE TRI	14.3	0.1									1	2				
56 SOLI DEC	14.3	0.1							1	2						
57 STEL MED	14.3	0.1									1	2				
58 VACC CAE	14.3	0.1									1	2				
D LAYER																
59 POLY JUN	57.1	1.7	1	2					1	2			9	2	1	2
60 BRAC SAL	42.9	0.4	1	2					1	2					1	2
61 PLEU SCH	42.9	0.4							1	2			1	2	1	1
62 CLAD GRA	28.6	0.3							1	2			1	2		
63 PELT APH	14.3	0.9	6	2												
64 AULA PAL	14.3	0.1							1	2						
65 CLAD COC	14.3	0.1							1	2						
66 CLAD CRI	14.3	0.1									1	2				
67 CLAD MIT	14.3	0.1							1	2						
68 CLAD VER	14.3	0.1									1	2				
69 HAPL MIC	14.3	0.1	1	2												
70 PELT MAL	14.3	0.1											1	2		
71 TOME NIT	14.3	0.1							1	2						
EX LAYER																
72 ELYM INN	71.4	2.3			5	2	1	2			3	2	6	2	1	2
73 CALA INE	42.9	0.6	1	1			2	2	1	2						
74 CARE RIC	42.9	0.4									1	2	1	2	1	2
75 ORYZ PUN	42.9	0.4									1	2	1	2	1	2
76 CARE PEC	28.6	0.3	1	1			1	2								
77 ORYZ ASP	28.6	0.3			1	2					1	2				
78 SCHI PUR	28.6	0.3									2				1	2
79 CALA CAN	14.3	0.1											2			

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	A	1a

ASPEN/ALDER/TWINFLOWER

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4345		20 4346		20 7402		20 7448		20 7461		20 7468		20 7470	
NUMBER OF SPECIES PER PLOT	39.4		28		41		29		57		43		32		46	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
80 CARE CON	14.3	0.1							1	2						
EL LAYER																
ROSA ACI	100.0	3.4	3	2	5	2	2	2	2	2	5	2	5	2	2	2
VIBU EDU	71.4	3.1	15	2	2	2	3	2			1	2			1	2
ALNU CRI	28.6	0.9	5	2			1	2								
AMEL ALN	28.6	0.9			1	2							5	2		
81 SYMP ALB	28.6	0.9			5	2									1	2
PRUN PEN	28.6	0.7							1	2					4	2
PICE GLA	28.6	0.4							1	2	2	2				
PRUN VIR	28.6	0.4											2	2	1	2
82 CORN STO	28.6	0.3			1	2			1	2						
LEDU GRO	28.6	0.3					1	2			1	2				
83 LONI INV	14.3	0.7									5	2				
84 CORY COR	14.3	0.1			1	2										
85 LONI DIO	14.3	0.1			1	2										
86 RIBE HIR	14.3	0.1							1	2						
87 RUBU STR	14.3	0.1					1	2								
SALI BEB	14.3	0.1							1	2						
88 SALI MYR	14.3	0.1							1	2						
89 SHEP CAN	14.3	0.1							1	2						

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ENVIRONMENT-VEGETATION TABLES, PART 1 — RESOURCE INVENTORY

SYNSYSTEMATIC UNIT : 8DM A 16 ASPEN/WILLOW/SARSAPARILLA — TABLE 6

PLOT NUMBER	MEAN	20 4332	20 4278	20 4344	20 4347	20 7406	20 7412	20 7449	20 7466
ECOREGION		8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :									
ELEVATION(M)	600.0	600	600	600	600	600	600	600	600
SLOPE GRADIENT(%)	3.0	004	002	000	004	002	001	010	001
ASPECT		208	185	999	319	350	079	064	077
SOIL SUBGROUP		BR	E	BR	BR	BR	BR	E	E
SOIL GREATGROUP		GL	EB	GL	GL	GL	GL	EB	EB
TEXTURE & PARENT MATERIAL		L SM	S GF	S GF	S GF	S GF	S GF	S GF	S GF
DRAINAGE		W	W	W	W	W	W	MW	W
ENV MOISTURE REGIME		M	SX	SM	M	SM	M	M	SM
FOREST COVER-HT & DENSITY		C1	B1	D1	C2	C1	D1	D1	B2
FOREST COVER-SPECIES		A	A	A	A	A	A	A	A P
BIOMASS-FORBS(KG/HA)	32.8	30.0	27.2	28.4	57.6	37.6	20.4	27.2	34.4
BIOMASS-GRASSES(KG/HA)	9.0	3.2	9.6	14.2	19.6	12.8	3.2	3.6	6.4
CLIMAX		SW	SW	SW	SW	SW	SW	SW	SW
BROWSE(KG/HA)		5.6	2.9					3.8	
SOIL PLOT NUMBER		34	01	20					
VEGETATION :									
AGE-DOMINANT (A1)	50.0	50	50	50	50	50	50	50	50
-MAIN CANOPY (A2)									
-UNDERSTORY (A3)									
HEIGHT(M)-A1	17.6	25	15	22	17	13	14	18	17
-A2	15.5	23	12	19	15	11	12	16	16
-A3	9.9	10	8	9	12	10	10	13	7
-B1	4.7	4	5	5	5		4	5	5
-B2	1.6	1	1	2		2	2	1	2
STRATA COVER(%)-A	61.9	45	80	70	55	65	80	65	35
-B	28.1	65	15	60	30	15	05	15	20
-C	35.0	15	35	40	25	50	35	40	40
-D	1.5	02	03	01	01	01	01	01	02
-EX	4.4	02	10	10	01	07	01	02	02
SURFACE SUBST(%)-ORGANIC	96.8	85	99	97	99	99	98	99	98
-MIN SOIL	0.0	0	0	0	0	0	0	0	0
-DEAD WOOD	3.3	15	01	03	01	01	02	01	02
-OPEN WATER	0.0	0	0	1		0		0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	A	1b

ASPEN/WILLOW/SARSAPARILLA

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
EDMONTON, ALBERTA
aaaa I II I
TABLE 6 PAGE 1

PLOT NUMBER	AVERAGE VALUE		20 4332		20 4278		20 4344		20 4347		20 7406		20 7412		20 7449		20 7466	
NUMBER OF SPECIES PER PLOT	39.6		36		33		42		33		37		37		37		62	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER																		
1 POPU TRE	87.5	7.5			5	2	10	2	10	2	10	2	5	2	10	2	10	2
2 POPU BAL	25.0	1.9	10	2			5	2										
3 PICE GLA	12.5	0.6	5	2														
A2 LAYER.																		
POPU TRE	87.5	43.1			75	2	40	2	45	2	55	2	75	2	50	2	5	2
POPU BAL	50.0	6.5	20	2			20	2			2	2					10	2
PICE GLA	12.5	1.3	10	2														
4 BETU PAP	12.5	0.3	2	2														
A3 LAYER																		
POPU TRE	75.0	8.1			20	1			10	2	10	1	15	1	5	2	5	2
POPU BAL	62.5	3.3	5	2							5	2	1	1	5	2	10	2
PICE GLA	37.5	2.4					10	2	4	2							5	2
BETU PAP	25.0	0.9					5	2	2	2								
B1 LAYER																		
5 SALI BEB	62.5	7.3	5	2	10	1	35	2					1	2	7	2		
PICE GLA	37.5	0.6							2	2			1	2			2	2
6 ALNU CRI	12.5	1.3	10	2														
POPU TRE	12.5	0.6			5	1											2	2
7 LARI LAR	12.5	0.3																
8 AMEL ALN	12.5	0.1																
B2 LAYER															1	2		
ALNU CRI	50.0	2.5	5	2							10	2	3	2			2	2
SALI BEB	37.5	2.8					5	2			10	2					7	2
9 VIBU EDU	37.5	2.8	10	2	10	2									2	2		
PICE GLA	25.0	0.5			3	2					1	2						
10 LONI INV	12.5	2.5	20	2														
11 CORN STO	12.5	0.6	5	2														
12 PRUN VIR	12.5	0.3																
13 RIBE HIR	12.5	0.3	2	2											2	2		
14 RIBE OXY	12.5	0.3	2	2														
15 ROSA ACI	12.5	0.3	2	2														
AMEL ALN	12.5	0.1																
C LAYER															1	2		
16 EPIL ANG	100.0	7.3	6	2	10	2	6	2	11	2	14	2	1	2	2	2	8	2
17 RUBU PUB	100.0	5.4	4	2	1	2	3	2	10	2	2	2	5	2	12	2	6	2
18 CORN CAN	100.0	5.1	3	2	5	2	4	2	6	2	6	2	1	2	10	2	6	2
19 FRAG VIR	100.0	3.5	1	2	3	2	9	2	2	2	4	2	1	2	1	2	7	2
20 PETA PAL	100.0	2.9	2	2	1	2	2	2	1	2	2	2	1	2	2	2	12	2
21 PYRO ASA	100.0	2.0	1	2	2	2	1	2	2	2	3	2	3	2	2	2	2	2
22 ASTE CIL	100.0	1.5	1	2	2	2	2	2	1	2	2	2	1	2	1	2	2	2
23 GALI BOR	100.0	1.1	1	2	1	2	1	2	1	2	2	2	1	2	1	2	1	2
24 LATH OCH	87.5	3.3			1	2	8	2	3	2	11	2	1	2	1	2	1	2
25 MAIA CAN	87.5	2.4			3	2	4	2	2	2	4	2	2	2	2	2	2	2
26 TRIE BOR	87.5	1.0			1	2	1	2	2	2	1	2	1	2	1	2	1	2
27 LINN BOR	75.0	2.5			2	2	8	2			5	2	1	2	2	2	1	2
28 VICI AME	62.5	0.8					1	2	1	2	2	2			1	2	1	2
29 ACHI MIL	62.5	0.6			1	2	1	2			1	2			1	2	1	2

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	A	1b

ASPEN/WILLOW/SARSAPARILLA

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
EDMONTON, ALBERTA
aaaa I II I
TABLE 6 PAGE 2

PLOT NUMBER	AVERAGE VALUE		20 4332		20 4278		20 4344		20 4347		20 7406		20 7412		20 7449		20 7466	
NUMBER OF SPECIES PER PLOT	39.6		36		33		42		33		37		37		37		62	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
30 ARAL NUD	50.0	4.1	16	2							1	2	13	2	3	2		
31 MERT PAN	50.0	3.3	12	2					4	2			8	2			2	2
32 MITE NUD	50.0	2.0	10	2			4	2					1	2			1	2
33 VACC VIT	50.0	0.8			2	2	1	2			1	2					2	2
34 EQUI ARV	50.0	0.5	1	2			1	2	1	2							1	2
35 PYRO SEC	50.0	0.5									1	2	1	2	1	2	1	2
36 VACC CAE	50.0	0.5			1	2			1	2	1	2					1	2
37 THAL VEN	37.5	2.1							1	2					1	2	15	2
38 VACC MYR	37.5	1.5			7	2					4	2					1	2
39 ARCT UVA	37.5	0.6			1	2	2	2									2	2
40 ASTE CON	37.5	0.6					1	2	3	2					1	2		
41 ACTA RUB	25.0	0.3											1	2	1	2		
42 GALI TRI	25.0	0.3	1	2									1	2				
43 HEDY ALP	25.0	0.3									1	2					1	2
44 LILI PHI	25.0	0.3					1	2									1	2
45 TARA OFF	25.0	0.3			1	2									1	2	1	2
46 VIOL ADU	25.0	0.3													1	2		
47 ANTE NEG	12.5	0.1															1	2
48 CAMP ROT	12.5	0.1															1	2
49 CORA TRI	12.5	0.1											1	2				
50 DISP TRA	12.5	0.1	1	2													1	2
51 EQUI SCI	12.5	0.1															1	2
52 GENT AMA	12.5	0.1															1	2
53 GEOC LIV	12.5	0.1															1	2
54 HIER CAN	12.5	0.1													1	2		
55 POLY PAU	12.5	0.1					1	2										
56 SANI MAR	12.5	0.1													1	2		
57 SMIL STE	12.5	0.1															1	2
58 VALE SEP	12.5	0.1															1	2
59 VIOL RUG	12.5	0.1									1	2						
D LAYER																		
60 BRAC SAL	62.5	0.9	1	2	2	2	2	2			1	2	1	2				
61 PELT CAN	25.0	0.3			1	2							1	2				
62 PLEU SCH	25.0	0.3							1	2			1	2				
63 PTIL CRI	25.0	0.3			1	2							1	2				
64 HYLO SPL	12.5	0.4															3	2
65 AULA PAL	12.5	0.3															2	2
66 CLIM DEN	12.5	0.1															1	2
EX LAYER																		
67 ELYM INN	87.5	3.0	1	2	6	2	6	2	2	2	7	2			1	2	1	2
68 CALA INE	50.0	0.5	1	2					1	2			1	2			1	2
69 ORYZ ASP	25.0	0.4							1	2	2	2						
70 ORYZ PUN	25.0	0.3													1	2	1	2
71 CARE PEC	12.5	0.1															1	2
72 CARE PRA	12.5	0.1									1	2						
73 SCHI PUR	12.5	0.1															1	2
EL LAYER																		
ROSA ACI	87.5	3.5			2	2	3	2	2	2			1	2	10	2	5	2

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	A	1b

ASPEN/WILLOW/SARSAPARILLA

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4332		20 4278		20 4344		20 4347		20 7406		20 7412		20 7448		20 7466	
NUMBER OF SPECIES PER PLOT	39.6		36		33		42		33		37		37		37		62	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
VIBU EDU	75.0	8.5			10	2	10	2	30	2	15	2	2	2	1	2		
74 SYMP ALB	75.0	1.0	1	2			1	2	1	2			2	2	2	2	1	2
75 LONI DIO	62.5	1.3					3	2	3	2	2	2	1	2			1	2
ALNU CRI	37.5	0.4			1	2					1	2					1	2
76 RUBU STR	37.5	0.4	1	2					1	2			1	2				
LONI INV	25.0	0.8					5	2									1	2
77 LEDU GRO	25.0	0.4					1	2									2	2
78 LONI VIL	25.0	0.4					2	2									1	2
79 SHEP CAN	25.0	0.4					1	2	1	2							2	2
AMEL ALN	25.0	0.3	1	2														
CORN STO	25.0	0.3					1	2									1	2
RIBE OXY	25.0	0.3			1	2	1	2										
80 RIBE TRI	25.0	0.3	1	2									1	2				
81 BETU PUM	12.5	0.1															1	2
RIBE HIR	12.5	0.1															1	2
SALI BEB	12.5	0.1					1	2										

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ENVIRONMENT-VEGETATION TABLES, PART 1 — RESOURCE INVENTORY

SYNSYSTEMATIC UNIT : 8DM A 2ASPEN-POPLAR/CRANBERRY — TABLE 7

PLOT NUMBER	MEAN	20 4282	20 4334	20 7408	20 7410	20 7411	20 4315	20 4317	20 4328
ECOREGION		8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :									
ELEVATION(M)	600.0	600	600	600	600	600	600	600	600
SLOPE GRADIENT(%)	6.0	031	000	001	005	003	003	003	002
ASPECT		018	999	106	066	140	200	222	189
SOIL SUBGROUP		E	E	BR	BR	BR	O	O	O
SOIL GREATGROUP		EB	EB	GL	GL	GL	GL	GL	GL
TEXTURE & PARENT MATERIAL		S GF	S GF	S GF	S GF	S GF	L SM	L SM	L SM
DRAINAGE		W	W	W	W	W	W	W	MW
ENV MOISTURE REGIME		SM	SM	M	M	M	SM	M	M
FOREST COVER-HT & DENSITY		B3	B3	B3	B3	B3	A3	B3	B3
FOREST COVER-SPECIES		P	A	A	A	A	P A	A SW	A
BIOMASS-FORBS(KG/HA)	36.1	16.4	42.4	53.2	30.8	15.2	35.2	43.2	52.4
BIOMASS-GRASSES(KG/HA)	7.6	1.6	14.0	1.6	.2	6.0	.2	24.4	13.2
CLIMAX		SW	SW	SW	SW	SW	SW	SW	SW
BROWSE(KG/HA)				18.1					57.2
SOIL PLOT NUMBER		12	36				14	18	30
VEGETATION :									
AGE-DOMINANT (A1)	100.0	100	100	100	100	100	100	100	100
-MAIN CANOPY (A2)									
-UNDERSTORY (A3)									
HEIGHT(M)-A1	22.5	23	25	20	25	24	15	27	21
-A2	20.4	21	25	19	24	20	11	25	18
-A3	15.0	20	12	15	16	15	9	23	10
-B1	4.5		5		3	5	4	5	5
-B2	1.6	2	2	2	1	1	1	2	2
STRATA COVER(%)-A	47.5	60	45	40	65	30	40	40	60
-B	30.0	35	20	30	30	40	15	25	45
-C	40.0	40	65	50	15	40	60	25	25
-D	2.3	01	05		05	02	01	01	01
-EX	6.4	01	10	02		02	15	10	05
SURFACE SUBST(%)-ORGANIC	96.4	99	97	98	97	90	99	98	93
-MIN SOIL	0.0	0	0	0	0	0	0	0	0
-DEAD WOOD	3.6	01	03	02	03	10	01	02	07
-OPEN WATER	0.0		0			0			0

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ENVIRONMENT-VEGETATION TABLES, PART 1

SYNSYSTEMATIC UNIT : 8DM A 2ASPEN-POPLAR/CRANBERRY

RESOURCE INVENTORY

TABLE 7

PLOT NUMBER	MEAN	20 4282	20 4334	20 7408	20 7410	20 7411	20 4315	20 4317	20 4328
ECOREGION		8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :									
ELEVATION(M)	600.0	600	600	600	600	600	600	600	600
SLOPE GRADIENT(%)	6.0	031	000	001	005	003	003	003	002
ASPECT		018	999	106	066	140	200	222	189
SOIL SUBGROUP		E	E	BR	BR	BR	O	O	O
SOIL GREATGROUP		EB	EB	GL	GL	GL	GL	GL	GL
TEXTURE & PARENT MATERIAL		S GF	S GF	S GF	S GF	S GF	L SM	L SM	L SM
DRAINAGE		W	W	W	W	W	W	W	MW
ENV MOISTURE REGIME		SM	SM	M	M	M	SM	M	M
FOREST COVER-HT & DENSITY		B3	B3	B3	B3	B3	A3	B3	B3
FOREST COVER-SPECIES		P	A	A	A	A	P A	A SW	A
BIOMASS-FORBS(KG/HA)	36.1	16.4	42.4	53.2	30.8	15.2	35.2	43.2	52.4
BIOMASS-GRASSES(KG/HA)	7.6	1.6	14.0	1.6	.2	6.0	.2	24.4	13.2
CLIMAX		SW	SW	SW	SW	SW	SW	SW	SW
BROWSE(KG/HA)				18.1					57.2
SOIL PLOT NUMBER		12	36				14	18	30
VEGETATION :									
AGE-DOMINANT (A1)	100.0	100	100	100	100	100	100	100	100
-MAIN CANOPY (A2)									
-UNDERSTORY (A3)									
HEIGHT(M)-A1	22.5	23	25	20	25	24	15	27	21
-A2	20.4	21	25	19	24	20	11	25	18
-A3	15.0	20	12	15	16	15	9	23	10
-B1	4.5		5		3	5	4	5	5
-B2	1.6	2	2	2	1	1	1	2	2
STRATA COVER(%)-A	47.5	60	45	40	65	30	40	40	60
-B	30.0	35	20	30	30	40	15	25	45
-C	40.0	40	65	50	15	40	60	25	25
-D	2.3	01	05		05	02	01	01	01
-EX	6.4	01	10	02		02	15	10	05
SURFACE SUBST(%)-ORGANIC	96.4	99	97	98	97	80	99	98	93
-MIN SOIL	0.0								
-DEAD WOOD	3.6	01	03	02	03	10	01	02	07
-OPEN WATER	0.0								

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BOM	A	2

ASPEN-POPLAR/CRANBERRY

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4282		20 4334		20 7408		20 7410		20 7411		20 4315		20 4317		20 4328	
NUMBER OF SPECIES PER PLOT	36.0		30		44		28		28		48		42		35		33	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER																		
1 POPU TRE	100.0	7.4	10	2	5	2	2	2	5	2	10	2	5	2	5	2	17	2
2 POPU BAL	50.0	1.8					2	2	5	2	5	2					2	2
3 PICE GLA	25.0	1.5			10	2									2	2		
A2 LAYER																		
POPU TRE	100.0	31.3	50	2	10	2	25	2	50	2	15	2	25	2	20	2	55	2
POPU BAL	50.0	4.4			5	2	20	2	5	2	5	2						
PICE GLA	25.0	1.3			5	2							5	2				
4 BETU PAP	12.5	0.6							5	2								
5 PINU BAN	12.5	0.1											1	2				
A3 LAYER																		
POPU TRE	87.5	4.9	5	2	5	2	2	2			5	2	5	2	10	2	7	2
PICE GLA	62.5	3.8			5	2	10	2	5	1	5	2	5	2				
POPU BAL	50.0	1.5					2	2	5	1	2	2					3	2
BETU PAP	12.5	0.3			2	2												
B1 LAYER																		
6 SALI BEB	37.5	3.8											15	2	10	2	5	2
POPU BAL	25.0	2.5			5	2					15	2						
POPU TRE	25.0	1.3			5	2					5	2						
7 ALNU CRI	25.0	1.0							5	2							3	1
BETU PAP	25.0	0.9			2	2			5	2								
B2 LAYER																		
8 VIBU EDU	50.0	4.9	10	2							2	2			7	2	20	2
9 ROSA ACI	50.0	3.6	2	2							15	2			2	2	10	2
ALNU CRI	37.5	4.4	25	2	5	2					5	2						
10 AMEL ALN	37.5	2.0									2	2	10	2	4	2		
POPU TRE	25.0	1.5			2	2	10	2										
SALI BEB	25.0	0.8	1	2	5	2												
11 LONI INV	12.5	0.9									7	2						
12 CORY COR	12.5	0.4													3	2		
13 CORN STO	12.5	0.3									2	2						
14 PRUN VIR	12.5	0.3									2	2						
C LAYER																		
15 CORN CAN	100.0	7.0	25	2	4	2	3	2	4	2	4	2	9	2	5	2	2	2
16 LINN BOR	100.0	3.3	7	2	2	2	3	2	1	2	4	2	3	2	5	2	1	2
17 ASTE CIL	100.0	1.8	1	2	2	2	1	2	2	2	1	2	3	2	3	2	1	2
18 MAIA CAN	100.0	1.5	1	2	1	2	1	2	1	2	1	2	5	2	1	2	1	2
19 TRIE BOR	100.0	1.0	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
20 EPIL ANG	87.5	8.6	2	2	15	2	3	2			12	2	7	2	13	2	17	2
21 ARAL NUD	87.5	6.3	3	2	6	2	6	2	6	2	7	2			10	2	12	2
22 RUBU PUB	87.5	2.8	2	2	3	2	2	2	4	2	2	2			6	2	3	2
23 PYRO ASA	87.5	1.9	1	2	1	2	2	2	2	2			4	2	4	2	1	2
24 PETA PAL	87.5	1.5			2	2	3	2	1	2	1	2	2	2	2	2	1	2
25 FRAG VIR	87.5	1.1	1	2	1	2			1	2	1	2	3	2	1	2	1	2
26 VIOL RUG	87.5	1.0	1	2	1	2	1	2	1	2	2	2	1	2			1	2
27 GALI BOR	75.0	1.0			1	2	1	2			1	2	3	2	1	2	1	2
28 LATH OCH	62.5	3.0			1	2					1	2	10	2	5	2	7	2
29 MERT PAN	62.5	2.4			4	2	6	2	5	2					2	2		

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	A	2

ASPEN-POPLAR/CRANBERRY

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
EDMONTON, ALBERTA
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TABLE 7 PAGE 2

PLOT NUMBER	AVERAGE VALUE		20 4282		20 4334		20 7408		20 7410		20 7411		20 4315		20 4317		20 4328	
NUMBER OF SPECIES PER PLOT	36.0		30		44		28		28		48		42		35		33	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
30 MITE NUD	62.5	1.1			2	2	4	2	1	2	1	2					1	2
31 ASTE CON	50.0	1.5			1	2							3	2	7	2	1	2
32 ACTA RUB	50.0	0.5	1	2	1	2					1	2					1	2
33 VICI AME	50.0	0.5			1	2							1	2	1	2	1	2
34 VACC MYR	37.5	3.0	1	2	4	2							19	2				
35 LYCO ANN	25.0	1.0	1	2			7	2										
36 THAL VEN	25.0	0.6									2	2			3	2		
37 DISP TRA	25.0	0.3					1	2			1	2						
38 EQUI ARV	25.0	0.3			1	2					1	2						
39 VACC VIT	25.0	0.3			1	2							1	2				
40 PYRO SEC	12.5	0.4											3	2				
41 ACHI MIL	12.5	0.1											1	2				
42 ARCT UVA	12.5	0.1											1	2				
43 AREN LAT	12.5	0.1	1	2														
44 CAMP ROT	12.5	0.1											1	2				
45 HEDY ALP	12.5	0.1											1	2				
46 LYCO OBS	12.5	0.1	1	2														
47 VACC CAE	12.5	0.1											1	2				
48 VIOL ADU	12.5	0.1											1	2				
D LAYER																		
49 PLEU SCH	62.5	1.0			2	2			3	2	1	2			1	2	1	2
50 BRAC SAL	50.0	0.8	1	2	3	2			2	2			1	2				
EX LAYER																		
51 CALA INE	75.0	1.9	1	2	2	2	2	2			1	2			6	2	3	2
52 ELYM INN	62.5	3.0	1	2	7	2					1	2	13	2	2	2		
53 ORYZ ASP	25.0	0.3			1	2							1	2				
54 CARE PEC	12.5	0.1	1	2														
55 CARE PRA	12.5	0.1											1	2				
56 HIER ODO	12.5	0.1											1	2				
EL LAYER																		
VIBU EDU	87.5	8.6	10	2			20	2	25	2	5	2	1	2	3	2	5	2
ROSA ACI	75.0	4.3	3	2	5	2	10	2	1	2			5	2	10	2		
57 LONI DIO	62.5	0.8	1	2	2	2					1	2	1	2			1	2
LONI INV	37.5	2.5							2	2	15	2			3	2		
58 RUBU STR	37.5	0.6					2	2			1	2			2	2		
59 SYMP ALB	37.5	0.5									1	2	1	2			2	2
CORN STO	37.5	0.4			1	2			1	2	1	2						
AMEL ALN	25.0	0.6											3	2	2	2		
ALNU CRI	12.5	0.6															5	2
60 RIBE OXY	12.5	0.3									2	2						
POPU BAL	12.5	0.1									1	2						
61 RHAM ALN	12.5	0.1									1	2						
62 RIBE HIR	12.5	0.1													1	2		
63 RIBE TRI	12.5	0.1									1	2						
64 SHEP CAN	12.5	0.1											1	2				

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ENVIRONMENT-VEGETATION TABLES, PART I — RESOURCE INVENTORY

SYNSYSTEMATIC UNIT : 8DM A 3ASPEN/CRANBERRY/SARSAPARILLA — TABLE 8

PLOT NUMBER	MEAN	20 4322	20 4326	20 4325	20 4329	20 4337	20 7428	20 7430	20 7432	20 7454	20 7455
ECOREGION		8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :											
ELEVATION(M)	600.0	600	600	600	600	600	600	600	600	600	600
SLOPE GRADIENT(%)	5.4	002	005	003	008	002	005	012	004	005	008
ASPECT		189	112	320	317	285	091	323	010	180	318
SOIL SUBGROUP		O	O	BR	BR	GLO	O	O	O	O	O
SOIL GREATGROUP		GL	GL	GL	GL	GL	GL	GL	GL	GL	GL
TEXTURE & PARENT MATERIAL		LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSG	LSM
DRAINAGE		W	W	W	W	I	W	MW	MW	MW	MW
ENV MOISTURE REGIME		M	M	M	M	SH	M	M	M	M	M
FOREST COVER-HT & DENSITY		C1	C2	D1	D1	D1	C1	C1	D1	D1	D1
FOREST COVER-SPECIES		A	A	A	A	A	A	A	A	A	A
BIOMASS-FORBS(KG/HA)	20.7	20.7	20.7	20.7	7.6	20.8	22.8	24.0	26.0	30.0	14.0
BIOMASS-GRASSES(KG/HA)	5.7	5.6	5.6	5.6	.6	7.6	14.4	2.8	.4	14.8	.4
CLIMAX		SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
BROWSE(KG/HA)				9.8	41.7	9.4					
SOIL PLOT NUMBER		24	25	26	31	39				17	
VEGETATION :											
AGE-DOMINANT (A1)	50.0	50	50	50	50	50	50	50	50	50	50
-MAIN CANOPY (A2)											
-UNDERSTORY (A3)											
HEIGHT(M)-A1	19.6	18	24	16	20	23	18	17	22	17	21
-A2	18.0	17	22	14	19	22	16	15	19	16	20
-A3	14.1	13	15	8	17	18	13	11	15	13	18
-B1	4.6	5	4	5	5		5	4	3	5	5
-B2	1.6		1	2	2	1	1	2	2	1	2
STRATA COVER(%)-A	76.0	75	75	75	80	85	85	65	85	50	85
-B	27.3	35	25	30	55	40	08	25	15	15	25
-C	31.5	25	20	35	10	30	40	50	70	25	10
-D	1.6		02	01		03	02	02	01	01	01
-EX	2.5	07	01	01	01	01	05	02	01	05	01
SURFACE SUBST(%)-ORGANIC	97.2	99	99	98	98	90	98	99	99	97	95
-MIN SOIL	0.0	0	0	0	0	0	0	0	0	0	0
-DEAD WOOD	2.8	01	01	02	02	10	02	01	01	03	05
-OPEN WATER	0.0	01	0	0	0	0	0	0	0	2	2

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	A	3

ASPEN/CRANBERRY/SARSAPARILLA

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
EDMONTON, ALBERTA
aaaa 1 II 1
TABLE 8 PAGE 1

PLOT NUMBER	AVERAGE VALUE		20 4322		20 4326		20 4325		20 4329		20 4337		20 7428		20 7430		20 7432		20 7454		20 7455	
NUMBER OF SPECIES PER PLOT	34.2		26		37		35		33		39		35		33		33		33		38	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER																						
1 POPU TRE	100.0	6.3	10	2	7	2	10	2	5	2	5	2	6	2	5	2	5	2	5	2	5	2
2 POPU BAL	10.0	0.5															5	2				
A2 LAYER																						
POPU TRE	100.0	65.5	70	2	70	2	60	2	75	2	80	2	80	2	40	2	60	2	40	2	80	2
POPU BAL	20.0	2.5													10	2	15	2				
A3 LAYER																						
POPU TRE	100.0	6.8	5	2	10	2	5	2	5	2	3	2	10	2	10	2	10	2	5	2	5	1
POPU BAL	40.0	2.2							5	2					5	2	5	2	7	2		
3 BETU PAP	10.0	0.1									1	2										
B1 LAYER																						
4 SALI BEB	50.0	5.4	30	2	10	2			10	2			3	2	1	2						
5 AMEL ALN	40.0	2.1	5	2					5	2			1	2	10	2						
6 PRUN PEN	20.0	1.5															5	2			10	2
7 PICE GLA	10.0	1.0																	10	2		
POPU TRE	10.0	0.5					5	2														
B2 LAYER																						
8 VIBU EDU	60.0	5.1					5	2	10	2	15	2	1	2			10	2			10	2
9 CORY COR	50.0	2.6			7	2	3	2	5	2									8	2	3	2
10 ROSA ACI	30.0	1.1			3	2	5	2	3	2												
AMEL ALN	30.0	0.9			2	1	2	2							5	2						
SALI BEB	20.0	0.8					3	2											5	2		
PRUN PEN	10.0	1.0																			10	2
11 ALNU CRI	10.0	0.3					3	2														
PICE GLA	10.0	0.3									3	2										
12 CORN STO	10.0	0.1																			1	2
13 LONI INV	10.0	0.1			1	2																
C LAYER																						
14 RUBU PUB	100.0	3.6	3	2	6	2	4	2	2	2	4	2	1	2	3	2	6	2	3	2	4	2
15 ASTE CIL	100.0	2.9	3	2	3	2	5	2	3	2	4	2	5	2	3	2	1	2	1	2	1	2
16 MAIA CAN	100.0	1.7	1	2	2	2	3	2	2	2	1	2	1	2	1	2	2	2	1	2	3	2
17 LATH OCH	100.0	1.6	2	2	1	2	2	2	1	2	1	2	3	2	1	2	1	2	3	2	1	2
18 PYRO ASA	100.0	1.2	1	2	2	2	1	2	1	2	1	2	2	2	1	2	1	2	1	2	1	2
19 EPIL ANG	90.0	5.9	17	2	6	2	7	2	1	2	5	2	6	2	1	2			15	2	1	2
20 MERT PAN	90.0	3.3	6	2	3	2			1	2	8	2	5	2	3	2	2	2	2	2	3	2
21 GALI BOR	90.0	1.3	1	2	1	2	1	2	1	2			4	2	2	2	1	2	1	2	1	2
22 FRAG VIR	90.0	1.2	1	2	2	2	1	2	1	2	2	2	1	2	1	2			2	2	1	2
23 CORN CAN	80.0	1.9			3	2	2	2	2	2	5	2			2	2	3	2	1	2	1	2
24 PETA PAL	80.0	1.2	2	2	4	2	1	2			1	2	1	2			1	2	1	2	1	2
25 ARAL NUD	70.0	9.7			21	2	7	2	2	2					23	2	32	2	10	2	2	2
26 VICI AME	70.0	0.7	1	2	1	2	1	2	1	2	1	2	1	2					1	2		
27 VIOL RUG	60.0	2.5			1	2			3	2	1	2					1	2	15	2	4	2
28 LINN BOR	60.0	2.3			3	2	2	2	7	2	7	2			3	2			1	2		
29 ASTE CON	60.0	1.2			1	2	2	2					6	2			1	2	1	2	1	2
30 ACTA RUB	50.0	0.5							1	2	1	2	1	2	1	2					1	2
31 TRIE BOR	40.0	0.4					1	2	1	2	1	2									1	2
32 DISP TRA	30.0	0.6							1	2					1	2					4	2
33 EQUI SYL	30.0	0.4									1	2			2	2	1	2				

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	A	3

ASPEN/CRANBERRY/SARSAPARILLA

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4322		20 4326		20 4325		20 4329		20 4337		20 7428		20 7430		20 7432		20 7454		20 7455	
NUMBER OF SPECIES PER PLOT	34.2		26		37		35		33		39		35		33		33		33		38	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
34 VIOL ADU	30.0	0.3											1	2	1	2	1	2				
35 ACHI MIL	20.0	0.2	1	2									1	2								
36 GALI TRI	20.0	0.2									1	2									1	2
37 TARA OFF	20.0	0.2											1	2					1	2		
38 AREN LAT	10.0	0.1											1	2								
39 ASTR FRI	10.0	0.1	1	2																		
40 EQUI ARV	10.0	0.1																			1	2
41 HIER CAN	10.0	0.1											1	2								
42 MITE NUD	10.0	0.1									1	2										
43 PYRO SEC	10.0	0.1			1	2																
D LAYER																						
44 BRAC SAL	60.0	0.8			1	2	1	2			1	2	3	2			1	2			1	2
45 PLEU SCH	40.0	0.6			1	2	1	2					3	2			1	2				
46 PLAG CUS	30.0	0.3									1	2			1	2	1	2				
47 PELT CAN	20.0	0.2			1	2													1	2		
48 AMBL SER	10.0	0.1															1	2				
49 CLAD FIM	10.0	0.1																	1	2		
50 EURH PUL	10.0	0.1			1	2																
51 HYLO SPL	10.0	0.1									1	2										
52 POHL CRU	10.0	0.1															1	2				
53 PYLA POL	10.0	0.1													1	2						
EX LAYER																						
54 CALA INE	100.0	1.8	4	2	1	2	1	2	1	2	2	2	2	2	1	2	1	2	4	2	1	2
55 ELYM INN	70.0	1.2	3	2	1	2	2	2	1	2			3	2					1	2	1	2
56 ORYZ ASP	20.0	0.2			1	2							1	2								
EL LAYER																						
ROSA ACI	100.0	3.1	1	2	7	2	5	2	2	2	1	2	5	2	4	2	2	2	3	2	1	2
57 SYMP ALB	100.0	2.3	5	2	2	2	2	2	2	2	1	2	1	2	5	2	3	2	1	2	1	2
VIBU EDU	90.0	4.0			1	2	5	2	10	2	15	2	1	2	2	2	2	2	1	2	3	2
58 RUBU STR	80.0	1.0			1	2	1	2	2	2	1	2	1	2	1	2	1	2	2	2		
59 LONI DIO	50.0	1.5	1	2					5	2	1	2	1	2	7	2						
LONI INV	40.0	0.9	5	2							2	2							1	2	1	2
CORY COR	30.0	0.7			3	2	2	2									2	2				
AMEL ALN	30.0	0.5	2	2											2	2					1	2
60 RIBE OXY	30.0	0.3									1	2	1	2							1	2
CORN STO	20.0	0.2									1	2									1	2
PRUN PEN	10.0	0.5																			5	2
PICE GLA	10.0	0.3									3	1										
61 RIBE TRI	10.0	0.3									3	2										
ALNU CRI	10.0	0.2					2	2														
BETU PAP	10.0	0.1									1	2										
62 RIBE HIR	10.0	0.1	1	2																		

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ENVIRONMENT-VEGETATION TABLES, PART 1 — RESOURCE INVENTORY

SYNSYSTEMATIC UNIT : 8DM Sw WHITE SPRUCE-ASPEN/CRANBERRY/SARSAPARILLA — TABLE 9

PLOT NUMBER	MEAN	20 4336	20 7409	20 7456	20 7459	20 4623	20 4333	20 7407
ECOREGION		8DM	8DM	8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :								
ELEVATION(M)	600.0	600	600	600	600	600	600	600
SLOPE GRADIENT(%)	2.6	001	006	002	003	002	002	002
ASPECT		125	068	066	231	280	055	263
SOIL SUBGROUP		O	BR	O	O	BR	BR	BR
SOIL GREATGROUP		GL	GL	GL	GL	GL	GL	GL
TEXTURE & PARENT MATERIAL		LSM	S GF	LSM	LSM	S GF	S GF	S GF
DRAINAGE		MW	W	W	W	MW	W	W
ENV MOISTURE REGIME		M	M	M	M	SH	M	SH
FOREST COVER-HT & DENSITY		C3	C1	C3	B3	B3	C4	C4
FOREST COVER-SPECIES		SWA	SW	SWA	SWA	SWA	SWA	SWA
BIOMASS-FORBS(KG/HA)	32.1	25.2	20	59.2	49.6	32.1	31.2	25.6
BIOMASS-GRASSES(KG/HA)	3.8	36	0	32	15.6	3.9	.4	.4
CLIMAX		SW	SW	SW	SW	SW	SW	SW
BROWSE(KG/HA)			0		2.8			3.1
SOIL PLOT NUMBER		38		23			35	
VEGETATION :								
AGE-DOMINANT (A1)	76.2	99	34	53		93	78	100
-MAIN CANOPY (A2)	78.7	99	32	73		96	75	97
-UNDERSTORY (A3)								
HEIGHT(M)-A1	24.0	23	20	25	25	27	23	25
-A2	22.4	22	17	24	25	25	21	23
-A3	14.4	8	13	18	14	15	12	21
-B1	4.2	5	3		4	3	5	5
-B2	1.4	1	2	1	1	2	1	2
STRATA COVER(%)-A	53.6	40	60	45	65	30	70	65
-B	26.4	40	05	25	25	10	25	55
-C	32.9	40	05	65	50	25	35	10
-D	7.7	15	10	05		10	01	05
-EX	1.2	01		01	01	02		01
SURFACE SUBST(%)-ORGANIC	91.9	93	90	90	95	85	95	95
-MIN SOIL	0.0	0	0	0	0	0	0	0
-DEAD WOOD	8.1	07	10	10	05	15	05	05
-OPEN WATER	0.0	0	0	0	0	0	0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	Sw	1

WHITE SPRUCE-ASPEN/CRANBERRY/SARSAPARILLA

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
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TABLE 9 PAGE 1

PLOT NUMBER	AVERAGE VALUE		20 4336		20 7409		20 7456		20 7459		20 4623		20 4333		20 7407	
NUMBER OF SPECIES PER PLOT	39.0		51		38		39		32		41		40		32	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER																
1 PICE GLA	85.7	7.1	15	2	5	2	15	2			5	2	5	2	5	2
2 POPU BAL	42.9	3.6	10	2			5	2					10	2		
3 POPU TRE	28.6	2.1			5	2			10	2						
A2 LAYER																
PICE GLA	85.7	22.1	5	2	60	2			10	2	15	2	25	2	40	2
POPU TRE	71.4	8.6	5	2			25	2	20	2	5	2			5	2
POPU BAL	57.1	7.9	15	2					5	2			20	2	15	2
4 BETU PAP	14.3	1.3			9	2										
A3 LAYER																
POPU TRE	71.4	4.3	5	2			3	2	15	2	4	2	3	2		
PICE GLA	71.4	2.9			5	2			2	2	3	2	5	2	5	2
BETU PAP	57.1	2.3			6	2	2	2	5	2			3	2		
POPU BAL	28.6	1.4	5	2									5	2		
B1 LAYER																
5 ALNU CRI	42.9	2.1	5	2									5	2	5	2
PICE GLA	42.9	1.3			5	2			2	2			2	2		
POPU TRE	28.6	1.4			5	2					5	2				
6 SALI BEB	28.6	1.0							2	2			5	2		
POPU BAL	14.3	0.7	5	2												
7 AMEL ALN	14.3	0.3	2	2												
B2 LAYER																
8 VIBU EDU	71.4	10.6	10	2	1	2			15	2			3	2	45	2
ALNU CRI	42.9	2.9					10	2					5	2	5	2
SALI BEB	42.9	1.4			1	2			7	2			2	2		
9 LONI INV	28.6	3.1					2	2							20	2
AMEL ALN	28.6	0.6	2	2											2	2
POPU TRE	14.3	0.7									5	2				
10 CORN STO	14.3	0.3											2	2		
PICE GLA	14.3	0.3											2	2		
11 ROSA ACI	14.3	0.1					1	2								
C LAYER																
12 ARAL NUD	100.0	13.7	21	2	1	2	21	2	12	2	5	2	4	2	32	2
13 CORN CAN	100.0	4.9	6	2	1	2	10	2	5	2	5	2	3	2	4	2
14 MERT PAN	100.0	4.7	4	2	8	2	3	2	2	2	2	2	3	2	11	2
15 PETA PAL	100.0	2.1	4	2	2	2	1	2	2	2	2	2	3	2	1	2
16 ASTE CIL	100.0	1.6	1	2	2	2	1	2	3	2	1	2	2	2	1	2
17 FRAG VIR	100.0	1.6	2	2	1	2	1	2	1	2	3	2	2	2	1	2
18 MAIA CAN	100.0	1.3	1	2	1	2	1	2	2	2	2	2	1	2	1	2
19 LINN BOR	85.7	3.3	1	2	2	2	7	2	3	2	9	2	1	2		
20 EPIL ANG	71.4	6.4	2	2			10	2	16	2	6	2	11	2		
21 MITE NUD	71.4	2.9	4	2	1	2	5	2					4	2	6	2
22 RUBU PUB	71.4	2.1			1	2	6	2			1	2	4	2	3	2
23 EQUI ARV	71.4	0.7	1	2	1	1	1	2			1	2	1	2		
24 GALI BOR	71.4	0.7	1	2	1	2			1	2	1	2			1	2
25 PYRO ASA	57.1	0.9	1	2			2	2	2	2	1	2				
26 VIOL RUG	57.1	0.9	2	2	2	2	1	2					1	2		
27 LATH OCH	57.1	0.6	1	2					1	2						

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	Sw	1

WHITE SPRUCE-ASPEN/CRANBERRY/SARSAPARILLA

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4336		20 7409		20 7456		20 7459		20 4623		20 4333		20 7407	
NUMBER OF SPECIES PER PLOT	39.0		51		38		39		32		41		40		32	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
28 ACTA RUB	42.9	0.4	1	2			1	2	1	2						
29 GALI TRI	42.9	0.4	1	2	1	2	1	2								
30 TRIE BOR	42.9	0.4	1	2			1	2			1	2				
31 DISP TRA	28.6	0.3			1	2									1	2
32 PYRO SEC	28.6	0.3									1	2	1	2		
33 VACC MYR	28.6	0.3									1	2	1	2		
34 LYCO ANN	14.3	1.9					13	2								
35 VICI AME	14.3	0.3							2	2						
36 ACHI MIL	14.3	0.1									1	2				
37 ASTE CON	14.3	0.1									1	2				
38 CAMP ROT	14.3	0.1									1	2				
39 EQUI SYL	14.3	0.1					1	2								
40 GENT AMA	14.3	0.1									1	2				
41 HALE DEF	14.3	0.1									1	2				
42 OSMO DEP	14.3	0.1			1	2										
43 TARA OFF	14.3	0.1			1	2										
44 VACC VIT	14.3	0.1									1	2				
D LAYER																
45 BRAC SAL	71.4	3.7	21	2			2	2			1	2	1	2	1	2
46 PLEU SCH	71.4	1.9	1	2	4	2	1	2			5	2			2	2
47 HYLO SPL	57.1	1.6			1	2	1	2			8	2	1	2		
48 PTIL CRI	57.1	1.3	6	2	1	2	1	2							1	2
49 PELT APH	42.9	0.4			1	2	1	2			1	2				
50 PELT CAN	42.9	0.4	1	2	1	2	1	2								
51 PLAG CUS	28.6	1.3	4	2											5	2
52 PLAG DRU	14.3	1.1					8	2								
53 CLAD FIM	14.3	0.1	1	2												
54 CLAD GRA	14.3	0.1			1	2										
55 DICR FRA	14.3	0.1					1	2								
56 EURH PUL	14.3	0.1									1	2				
57 HYPO PHY	14.3	0.1									1	2				
58 LESC RAD	14.3	0.1			1	2										
59 ONCO WAH	14.3	0.1	1	2												
60 POLY JUN	14.3	0.1	1	2												
EX LAYER																
61 CALA INE	57.1	1.0	1	2			1	2	4	2	1	2				
62 ELYM INN	28.6	0.4	1	2							2	2				
63 CARE VAG	14.3	0.1	1	2												
64 SCHI PUR	14.3	0.1													1	2
EL LAYER																
VIBU EDU	100.0	4.1	7	2	1	2	5	2	3	2	5	2	3	2	5	2
ROSA ACI	85.7	3.0	2	2	1	2			7	2	1	2	5	2	5	2
LONI INV	71.4	2.6	5	2	1	2			2	2			5	2	5	2
65 SYMP ALB	71.4	0.9	1	2	2	2			1	2			1	2	1	2
66 RIBE TRI	57.1	0.6	1	2					1	2			1	2	1	2
CORN STO	42.9	1.1	5	2			2	2							1	2
67 LONI DIO	42.9	0.6	2	2							1	2	1	2		
68 RUBU STR	42.9	0.4	1	2			1	2	1	2						

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	Sw	1

WHITE SPRUCE-ASPEN/CRANBERRY/SARSAPARILLA

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

	AVERAGE VALUE		20 4336		20 7409		20 7456		20 7459		20 4623		20 4333		20 7407	
PLOT NUMBER																
NUMBER OF SPECIES PER PLOT	39.0		51		38		39		32		41		40		32	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
69 RIBE HIR	14.3	0.1	1	2												
70 RIBE OXY	14.3	0.1	1	2												

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ENVIRONMENT-VEGETATION TABLES, PART 1 — RESOURCE INVENTORY

SYNSYSTEMATIC UNIT : 8DM Sw 2WHITE SPRUCE/FEATHERMOSS — TABLE 10

PLOT NUMBER	MEAN	20 4321	20 7457	20 7458	20 7464
ECOREGION		8DM	8DM	8DM	8DM
ENVIRONMENT :					
ELEVATION(M)	600.0	600	600	600	600
SLOPE GRADIENT(%)	5.8	001	001	001	020
ASPECT		131	347	312	264
SOIL SUBGROUP		GL	BR	BR	O
SOIL GREATGROUP		EB	GL	GL	R
TEXTURE & PARENT MATERIAL		S GF	S GF	S GF	LSGF
DRAINAGE		I	MW	MW	W
ENV MOISTURE REGIME		SM	SH	SH	M
FOREST COVER-HT & DENSITY		C3	C3	C4	C3
FOREST COVER-SPECIES		SWA	SWA	SWA	SW
BIOMASS-FORBS(KG/HA)	L3	20	.4	16	L3
BIOMASS-GRASSES(KG/HA)	L2	.4	.4	28	L2
CLIMAX		SW	SW	SW	SW
BROWSE(KG/HA)		0	0	0	0
SOIL PLOT NUMBER		22			
VEGETATION :					
AGE-DOMINANT (A1)	110.5	135	109	91	107
-MAIN CANOPY (A2)	91.5	99	95	87	85
-UNDERSTORY (A3)	88.0	89	99	85	79
HEIGHT(M)-A1	23.5	21	25	23	25
-A2	22.3	19	24	22	24
-A3	11.8	10	14	13	10
-B1	0.0				
-B2	1.3	1	1	2	
STRATA COVER(%)-A	68.8	70	65	75	65
-B	2.0	01	02	04	01
-C	3.0	02	03	05	02
-D	86.3	90	90	90	75
-EX	1.0		01	01	01
SURFACE SUBST(%)-ORGANIC	90.8	90	90	90	93
-MIN SOIL	0.0	0	0	0	0
-DEAD WOOD	9.3	10	10	10	07
-OPEN WATER	0.0	0	0	0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	Sw	2

WHITE SPRUCE/FEATHERMOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4321		20 7457		20 7458		20 7464	
NUMBER OF SPECIES PER PLOT	24.5		16		25		28		29	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER										
1 PICE GLA	75.0	5.5			2	2	5	2	15	2
2 POPU BAL	25.0	1.3					5	2		
A2 LAYER										
PICE GLA	100.0	51.3	55	2	55	2	55	2	40	2
POPU BAL	50.0	1.8			5	2	2	2		
A3 LAYER										
PICE GLA	100.0	8.3	10	2	3	2	10	2	10	2
3 POPU TRE	25.0	1.3							5	2
4 BETU PAP	25.0	0.5							2	2
B2 LAYER										
POPU BAL	25.0	0.3					1	2		
5 VIBU EDU	25.0	0.3			1	2				
C LAYER										
6 LINN BOR	100.0	4.3	3	2	8	2	3	2	3	2
7 CORN CAN	100.0	2.3	3	2	1	2	2	2	3	2
8 MITE NUD	75.0	2.3	1	2	6	2	2	2		
9 RUBU PUB	75.0	1.0	1	2	2	2	1	2		
10 GOOD REP	75.0	0.8	1	2	1	2	1	2		
11 GEOC LIV	50.0	0.8	1	2					2	2
12 ASTE CIL	50.0	0.5			1	2	1	2		
13 EPIL ANG	50.0	0.5					1	2	1	2
14 EQUI ARV	50.0	0.5					1	2	1	2
15 GALI TRI	50.0	0.5			1	2	1	2		
16 MAIA CAN	50.0	0.5					1	2	1	2
17 PETA PAL	50.0	0.5	1	2	1	2				
18 PYRO SEC	50.0	0.5	1	2					1	2
19 VACC MYR	25.0	0.5							2	2
20 VACC VIT	25.0	0.5							2	2
21 ACTA RUB	25.0	0.3			1	2				
22 ARAL NUD	25.0	0.3							1	2
23 CAMP ROT	25.0	0.3							1	2
24 EQUI SCI	25.0	0.3					1	2		
25 FRAG VIR	25.0	0.3			1	2				
26 GALI BOR	25.0	0.3					1	2		
27 PYRO ASA	25.0	0.3					1	2		
28 TRIE BOR	25.0	0.3							1	2
29 VIOL RUG	25.0	0.3					1	2		
D LAYER										
30 HYLO SPL	100.0	47.5	61	2	40	2	56	2	33	2
31 PLEU SCH	100.0	24.0	4	2	44	2	13	2	35	2
32 PTIL CRI	75.0	14.8	31	2	14	2	14	2		
33 PELT MAL	50.0	0.5	1	2					1	2
34 DICR FRA	25.0	1.0							4	2
35 DICR POL	25.0	0.8							3	2
36 CLAD COR	25.0	0.3							1	2
37 CLAD GRA	25.0	0.3							1	2
38 CLAD MIT	25.0	0.3							1	2

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	Sw	2

WHITE SPRUCE/FEATHERMOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4321		20 7457		20 7458		20 7464	
NUMBER OF SPECIES PER PLOT	24.5		16		25		28		29	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV
39 POLY JUN	25.0	0.3							1	2
EX LAYER										
40 CARE VAG	50.0	1.0			1	2	3	2		
41 ELYM INN	25.0	0.3							1	2
EL LAYER										
VIBU EDU	75.0	0.8	1	2	1	2			1	2
POPU BAL	50.0	1.0	2	2			2	2		
42 ROSA ACI	50.0	0.5					1	2	1	2
43 ABIE BAL	25.0	0.3			1	2				
BETU PAP	25.0	0.3					1	2		
44 CORN STO	25.0	0.3					1	2		
45 CORY COR	25.0	0.3			1	2				
46 LONI INV	25.0	0.3			1	2				
47 RIBE OXY	25.0	0.3			1	2				
48 SYMP ALB	25.0	0.3			1	2				

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ENVIRONMENT-VEGETATION TABLES, PART 1 — RESOURCE INVENTORY

SYNSYSTEMATIC UNIT : 8DM Bp (BALSAM POPLAR/WILLOW/REED GRASS) — TABLE 11

PLOT NUMBER	MEAN	20 7462	20 7467
ECOREGION		8DM	8DM
ENVIRONMENT :			
ELEVATION(M)	600 0	600	600
SLOPE GRADIENT(%)	1 0	001	001
ASPECT		360	304
SOIL SUBGROUP		O	O
SOIL GREATGROUP		R	R
TEXTURE & PARENT MATERIAL		S F	S F
DRAINAGE		I	I
ENV MOISTURE REGIME		H	H
FOREST COVER-HT & DENSITY		83	A1
FOREST COVER-SPECIES		A SW	A
BIOMASS-FORBS(KG/HA)	19.6	14.8	24.4
BIOMASS-GRASSES(KG/HA)	57.0	57.6	56.4
CLIMAX		SW	SW
BROWSE(KG/HA)		68.9	59.3
SOIL PLOT NUMBER			
VEGETATION :			
AGE-DOMINANT (A1)	100.0	100	100
-MAIN CANOPY (A2)			
-UNDERSTORY (A3)			
HEIGHT(M)-A1	22.0	25	19
-A2	19.5	23	16
-A3	8.0		8
-B1	4.5	5	4
-B2	1.5	1	2
STRATA COVER(%)-A	27.5	15	40
-B	17.5	15	20
-C	25 0	10	40
-D	4.5	04	05
-EX	27 5	40	15
SURFACE SUBST(%)-ORGANIC	98.5	98	99
-MIN SOIL	0.0	0	0
-DEAD WOOD	1.5	02	01
-OPEN WATER	0 0	0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	Bp	1

BALSAM POPLAR/WILLOW/REED GRASS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 7462		20 7467	
NUMBER OF SPECIES PER PLOT	39.5		36		43	
SPECIES	%P	MC	%C	SV	%C	SV
A1 LAYER						
1 POPU BAL	50.0	2.5			5	2
2 POPU TRE	50.0	1.0	2	2		
A2 LAYER						
POPU BAL	100.0	9.0	15	2	3	2
A3 LAYER						
3 SALI BEB	50.0	17.5			35	2
B1 LAYER						
4 SALI PLA	50.0	20.0	40	2		
5 ALNU TEN	50.0	1.5			3	2
B2 LAYER						
6 CORN STO	100.0	10.0	5	2	15	2
7 RIBE AME	100.0	3.0	5	2	1	2
8 SYMP ALB	50.0	2.5	5	2		
9 LONI DIO	50.0	1.5	3	2		
10 RIBE LAC	50.0	0.5	1	2		
11 ROSA ACI	50.0	0.5	1	2		
C LAYER						
12 EQUI ARV	100.0	3.5	5	2	2	2
13 THAL VEN	100.0	3.5	1	2	6	2
14 TROL ALB	100.0	3.5	1	2	6	2
15 TARA OFF	100.0	3.0	1	2	5	2
16 RUBU PUB	100.0	2.5	4	2	1	2
17 FRAG VIR	100.0	2.0	3	2	1	2
18 VICI AME	100.0	2.0	1	2	3	2
19 AREN LAT	100.0	1.0	1	2	1	2
20 GEUM ALL	100.0	1.0	1	2	1	2
21 MENT ARV	100.0	1.0	1	2	1	2
22 SMIL STE	100.0	1.0	1	2	1	2
23 POLY AMP	50.0	3.5			7	2
24 SOLI GIG	50.0	3.0			6	2
25 ACHI MIL	50.0	0.5			1	2
26 ACHI SIB	50.0	0.5			1	2
27 ACTA RUB	50.0	0.5	1	2		
28 CAMP ROT	50.0	0.5			1	2
29 CICU DOU	50.0	0.5			1	2
30 ERIG PHI	50.0	0.5			1	2
31 GALI BOR	50.0	0.5	1	2		
32 HERA LAN	50.0	0.5	1	2		
33 HIER CAN	50.0	0.5			1	2
34 LATH OCH	50.0	0.5			1	2
35 MAIA CAN	50.0	0.5	1	2		
36 PARN PAL	50.0	0.5			1	2
37 PETA PAL	50.0	0.5			1	2
38 PETA SAG	50.0	0.5			1	2
39 POTE PAL	50.0	0.5	1	2		
40 POTE RIV	50.0	0.5	1	2		
41 SCUT GAL	50.0	0.5	1	2		

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	Bp	1

BALSAM POPLAR/WILLOW/REED GRASS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 7462		20 7467	
NUMBER OF SPECIES PER PLOT	39.5		36		43	
SPECIES	%P	MC	%C	SV	%C	SV
D LAYER						
42 CLIM DEN	50.0	2.5	5	2		
43 EURH PUL	50.0	2.5	5	2		
44 PLEU SCH	50.0	1.0			2	2
45 AULA PAL	50.0	0.5			1	2
46 BRYU PSE	50.0	0.5			1	2
47 DREP ADU	50.0	0.5			1	2
48 PLAG ELL	50.0	0.5			1	2
EX LAYER						
49 CALA CAN	100.0	14.0	24	2	4	2
50 POA PAL	100.0	1.0	1	2	1	2
51 CARE ATH	50.0	2.5			5	2
52 CARE DEW	50.0	1.0	2	2		
53 AGRO SCA	50.0	0.5			1	2
54 BROM PUM	50.0	0.5			1	2
55 CARE BRU	50.0	0.5	1	2		
56 CARE TEN	50.0	0.5	1	2		
EL LAYER						
ALNU TEN	50.0	2.5			5	2
RIBE AME	50.0	2.5	5	2		
SYMP ALB	50.0	1.5			3	2
POPU BAL	50.0	1.0			2	2
ROSA ACI	50.0	1.0			2	2
57 LONI INV	50.0	0.5	1	2		

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ENVIRONMENT-VEGETATION TABLES, PART I

SYNSYSTEMATIC UNIT : 8DM Sb 1BLACK SPRUCE/LABRADOR TEA/MOSS

RESOURCE INVENTORY

TABLE 12

PLOT NUMBER	MEAN	20 4340	20 4341	20 7404	20 7405	20 7413	20 7420	20 7421	20 7422	20 7426	20 7427	20 7429	20 7431	20 7443
ECOREGION		8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :														
ELEVATION(M)	600.0	600	600	600	600	600	600	600	600	600	600	600	600	600
SLOPE GRADIENT(%)	2.1	001	003	002	002	005	001	001	003	001	002	002	002	002
ASPECT		338	146	309	069	195	106	113	162	025	025	299	334	352
SOIL SUBGROUP		T	T	T	T	T	T	T	T	T	T	T	T	T
SOIL GREATGROUP		H	H	F	F	F	F	F	F	F	F	M	M	F
TEXTURE & PARENT MATERIAL		H O	H O	F O	F O	F O	F O	F O	F O	F O	F O	M O	M O	F O
DRAINAGE		P	P	P	P	P	P	P	P	P	P	P	P	P
ENV MOISTURE REGIME		SW	H	SW	SW	H	H	SW	SW	SW	SW	SW	SW	H
FOREST COVER-HT & DENSITY		S	S	S	C1	C1	B1	S	S	BO	B1	S	CO	CO
FOREST COVER-SPECIES		SB	SB	SB	SB	SB	SBLT	SB	SBLT	SBLT	SBLT	SBLT	SBLT	SB
BIOMASS-FORBS(KG/HA)	3.6	3.2	2.0	4.4	5.2	2.8	2.8	2.0	3.6	5.2	10.0	5.2	.8	0
BIOMASS-GRASSES(KG/HA)	4.9	11.2	.4	6.8	0	.4	3.2	5.6	.8	6.4	6.4	9.2	0	13.6
CLIMAX		SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB
BROWSE(KG/HA)		0	0	0	0	0	0	0	0	0	0	0	0	0
SOIL PLOT NUMBER			6											
VEGETATION :														
AGE-DOMINANT (A1)	72.6					54	72		88	98	51			
-MAIN CANOPY (A2)	60.8						59		86	48	50			
-UNDERSTORY (A3)														
HEIGHT(M) -A1	11.2	5	8	6	7	11	18	6	17	15	14	18	13	7
-A2	8.6	5	7		6	10	10		12	9	12		6	
-A3	7.3		5			9	8		6	8	8			
-B1	4.4		4	3			5	5	4	5	5	5	3	5
-B2	1.6	1	1	1	1		1	2	2	2		3	2	2
STRATA COVER(%)-A	31.1	70	40	05	35	50	50	02	55	40	50	01	05	01
-B	50.0	65	05	45	50		55	55	45	10	50	75	90	55
-C	8.0	05	05	07	05	5	15	05	05	25	15	05	02	05
-D	95.4	99	95	85	95	95	90	99	98	99	98	99	98	90
-EX	3.0	05	01	05		01	02	02	03	04	05	02		03
SURFACE SUBST(%)-ORGANIC	98.2	95	99	99	99	95	97	99	99	99	99	99	99	99
-MIN SOIL	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0
-DEAD WOOD	1.8	05	01	01	01	05	03	01	01	01	01	01	01	01
-OPEN WATER	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	Sb	1

BLACK SPRUCE/LABRADOR TEA/MOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4340		20 4341		20 7404		20 7405		20 7413		20 7420		20 7421		20 7422		20 7426		20 7427		20 7429		20 7431		20 7443	
NUMBER OF SPECIES PER PLOT	32.3		28		37		34		20		39		48		27		29		35		38		32		19		34	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER																												
1 PICE MAR	92.3	5.2	5	2	5	1	3	2	5	2	15	2	10	2	2	2	9	2			5	2	1	2	6	2	1	2
2 LARI LAR	53.8	1.7					3	2					5	2			3	2	4	2	5	2	1	2	1	2		
A2 LAYER																												
PICE MAR	69.2	26.2	65	2	40	1	45	2	30	2	30	2	30	2			45	2	25	2	30	2						
LARI LAR	23.1	3.5											15	2					15	2	15	2						
A3 LAYER																												
PICE MAR	38.5	2.3			10	1					10	2	5	2					3	2	2	2						
LARI LAR	23.1	0.8											5	2					3	2	2	2						
B1 LAYER																												
PICE MAR	69.2	7.3			5	1							5	2	10	2	5	2	5	2	10	2	25	2	15	2	15	2
LARI LAR	30.8	1.9											5	2					5	2	5	2	10	2				
B2 LAYER																												
PICE MAR	84.6	7.5	3	2	5	1	25	2	10	2			3	2	20	1	3	2	1	2			7	2	5	2	15	2
LARI LAR	7.7	0.3																					4	2				
3 SALI PLA	7.7	0.2							2	2																		
4 RHAM ALN	7.7	0.1	1	2																								
5 SALI MYR	7.7	0.1	1	2																								
C LAYER																												
6 VACC VIT	100.0	4.8	1	1	1	1	12	2	17	2	1	2	1	2	7	2	5	2	1	2	5	2	7	2	2	2	2	2
7 SMIL TRI	76.9	1.4	1	2			2	2	1	2	1	2			1	2	1	2	4	2	5	2	1	2	1	2		
8 OXYC MIC	69.2	0.8	1	2			2	2	1	2					2	2	1	2	1	2	1	2	1	2	1	2		
9 LINN BOR	53.8	0.9	1	2	3	1					1	2	2	2	1	2					1	2					3	2
10 MITE NUD	53.8	0.5	1	1	1	2					1	2	1	2					1	2			1	2			1	2
11 RUBU ACA	53.8	0.5					1	2			1	2			1	2			1	2	1	2	1	2			1	2
12 EQUI ARV	38.5	1.1	1	2			4	2	5	2	1	2											3	2				
13 VACC MYR	38.5	0.7			1	2					3	2	1	2			1	2									3	2
14 PETA PAL	38.5	0.4			1	1	1	2			1	2	1	2													1	2
15 FRAG VIR	30.8	0.3			1	1					1	2	1	2							1	2						
16 GEOC LIV	30.8	0.3					1	2					1	2	1	2							1	2				
17 ACHI MIL	23.1	0.2			1	1					1	2	1	1														
18 ASTE CIL	23.1	0.2	1	2							1	2															1	2
19 EPIL ANG	23.1	0.2			1	2							1	2													1	2
20 GALI BOR	23.1	0.2			1	1					1	2															1	2
21 PYRO ASA	23.1	0.2											1	2	1	2			1	2								
22 STEL LON	23.1	0.2			1	1													1	2	1	2						
23 CALT PAL	15.4	0.2	1	2															1	2								
24 CAMP ROT	15.4	0.2			1	1							1	2														
25 CORN CAN	15.4	0.2									2	2	1	2														
26 PETA SAG	15.4	0.2					1	2	1	2																		
27 RUBU CHA	15.4	0.2															1	2							2	2		
28 SPIR ROM	15.4	0.2	1	2																							1	2
29 TRIE BOR	15.4	0.2									1	2															2	2
30 VIOL ADU	15.4	0.2			1	2							1	2														
31 ARCT UVA	7.7	0.1			1	1																						
32 ASTE CON	7.7	0.1																									1	2
33 CHRY IOW	7.7	0.1			1	2																						
34 CORA TRI	7.7	0.1					1	2																				

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	Sb	1

BLACK SPRUCE/LABRADOR TEA/MOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4340		20 4341		20 7404		20 7405		20 7413		20 7420		20 7421		20 7422		20 7426		20 7427		20 7429		20 7431		20 7443	
NUMBER OF SPECIES PER PLOT	32.3		28		37		34		20		39		48		27		29		35		38		32		19		34	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
35 DROS ROT	7.7	0.1					1	2																				
36 GALI LAB	7.7	0.1																			1	2						
37 HABE HYP	7.7	0.1																			1	2						
38 HIER CAN	7.7	0.1									1	2																
39 LATH OCH	7.7	0.1									1	2																
40 MAIA CAN	7.7	0.1																									1	2
41 MENY TRI	7.7	0.1																			1	2						
42 ORCH ROT	7.7	0.1					1	2																				
43 PARN PAL	7.7	0.1											1	2														
44 PENS ALB	7.7	0.1											1	2														
45 POTE PAL	7.7	0.1																			1	2						
46 POTE TRI	7.7	0.1			1	1																						
47 PYRO SEC	7.7	0.1															1	2										
48 SANI MAR	7.7	0.1									1	2																
49 TARA OFF	7.7	0.1			1	2																						
50 VACC CAE	7.7	0.1									1	2																
51 ZIZI APT	7.7	0.1																									1	2
D LAYER																												
52 CLAD MIT	92.3	23.2	1	2	11	1	37	2	67	2	10	2	31	2	1	2	35	2			9	2	14	2	43	2	42	2
53 AULA PAL	92.3	12.8	1	2	25	2	7	2	1	2	25	2	50	2	16	2	1	2	6	2	13	2	10	2			11	2
54 PLEU SCH	84.6	6.5	20	2	14	1	3	2			10	2	2	2	1	2	1	2	1	2			7	2	25	2	1	2
55 DICR UND	69.2	2.2	2	2					1	2			5	2	1	2	1	2			13	2	1	2	2	2	3	2
56 TOME NIT	61.5	9.5	1	2			8	2					7	2	6	0			48	2	30	2	15	2			9	2
57 PELT APH	61.5	0.8	1	2	1	1					2	2	2	2	1	2	1	2	1	2			2	2				
58 SPHA FUS	53.8	15.2					37	2	18	2					59	2	36	2					20	2	27	2	1	2
59 HYLO SPL	53.8	3.9			14	1					15	2	1	2			1	2	1	2			13	2			6	2
60 POLY STR	46.2	0.6							1	2									1	2	1	2	3	2	1	2	1	2
61 CLAD GRA	38.5	0.5									3	2	1	2	1	2	1	2					1	2				
62 POLY JUN	38.5	0.5	1	1			1	1					1	2	3	2	1	2										
63 CLAD FUR	38.5	0.4			1	2			1	2			1	2			1	2					1	2				
64 PTIL CRI	30.8	0.4					2	2			1	2	1	2							1	2						
65 CLAD COR	23.1	0.2															1	2			1	2			1	2		
66 CLAD DEF	23.1	0.2					1	1									1	2									1	2
67 DICR POL	23.1	0.2									1	2	1	2											1	2		
68 PELT CAN	23.1	0.2			1	2																	1	2			1	2
69 SPHA WAR	15.4	3.9																	15	2	36	2						
70 DREP VER	15.4	0.3																	3	2	1	2						
71 PELT MAL	15.4	0.2											1	2					1	2								
72 SPHA ANG	15.4	0.2															1	2			1	2						
73 SPHA CUS	7.7	5.9	77	2																								
74 CALL GIG	7.7	1.0																	13	2								
75 PLAG CUS	7.7	0.4	5	2																								
76 BRYU PSE	7.7	0.1																			1	2						
77 CLAD CEN	7.7	0.1																					1	2				
78 CLAD CON	7.7	0.1									1	2																
79 CLAD FIM	7.7	0.1																							1	2		
80 CLAD MUL	7.7	0.1			1	2																						
81 CLAD PYX	7.7	0.1			1	1																						

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	Sb	1

BLACK SPRUCE/LABRADOR TEA/MOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4340		20 4341		20 7404		20 7405		20 7413		20 7420		20 7421		20 7422		20 7426		20 7427		20 7429		20 7431		20 7443	
NUMBER OF SPECIES PER PLOT	32.3		28		37		34		20		39		48		27		29		35		38		32		19		34	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
82 CLAD UNC	7.7	0.1											1	2														
83 DREP UNC	7.7	0.1			1	2																						
84 PELT POL	7.7	0.1									1	2																
85 SPHA NEM	7.7	0.1											1	2														
EX LAYER																												
86 CARE AQU	38.5	0.9	5	2			3	2							2	2	1	2					1	2				
87 CARE GYN	23.1	0.3					1	2											2	2			1	2				
88 JUNC BAL	15.4	0.4											1	2													4	2
89 CARE PRA	15.4	0.3																	3	2	1	2						
90 ELYM INN	15.4	0.2			1	2					1	2															1	2
91 CALA INE	7.7	0.1					1	2																				
92 CARE CAP	7.7	0.1											1	2														
93 CARE CHO	7.7	0.1																			1	2						
94 CARE CON	7.7	0.1											1	2														
95 CARE LIM	7.7	0.1									1	2																
96 CARE ROS	7.7	0.1																										
97 CARE VAG	7.7	0.1			1	2																					1	2
98 ORYZ ASP	7.7	0.1											1	2														
EL LAYER																												
99 LEDU GRO	92.3	31.8	60	2	3	1	25	2	40	2	20	2	45	2	35	2	40	2			15	2	40	2	65	2	25	2
SALI MYR	76.9	2.5	5	2			2	2	2	2	3	2	5	2	10	2	1	2	1	2			1	2			3	2
PICE MAR	61.5	5.0					5	2	2	2			2	2	35	1	2	1	1	2	3	2			15	2		
100 LONI VIL	53.8	0.7	1	2	1	1					1	2	2	2					1	2			1	2			2	2
101 ROSA ACI	53.8	0.6			1	1					1	2	2	2	1	2			1	2	1	1					1	2
102 BETU GLA	30.8	0.8													2	2	1	2	2	2	5	2						
103 BETU PUM	30.8	0.8	1	2											1	2			3	2	5	1						
104 SALI PED	30.8	0.5					1	2							2	2			1	2	3	2						
LARI LAR	23.1	0.3					1	2					2	2											1	2		
RHAM ALN	15.4	0.2					1	2	1	2																		
SALI PLA	15.4	0.2					1	2	2	2																		
105 SALI BEB	7.7	0.2			2	2																						
106 LONI INV	7.7	0.1									1	2																
107 RIBE GLA	7.7	0.1					1	2																				
108 RIBE LAC	7.7	0.1																										
109 SHEP CAN	7.7	0.1									1	1											1	2				

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ENVIRONMENT-VEGETATION TABLES, PART 1 — RESOURCE INVENTORY

SYNSYSTEMATIC UNIT : 8DM L — TAMARACK BLACK SPRUCE/SEDGE/MOSS — TABLE 13

PLOT NUMBER	MEAN	20 7452	20 7460
ECOREGION		8DM	8DM
ENVIRONMENT :			
ELEVATION(M)	600 0	600	600
SLOPE GRADIENT(%)	0.0	000	000
ASPECT		999	999
SOIL SUBGROUP		FI	FI
SOIL GREATGROUP		M	M
TEXTURE & PARENT MATERIAL		F 0	M 0
DRAINAGE		VP	VP
ENV MOISTURE REGIME		W	W
FOREST COVER-HT & DENSITY		80	S
FOREST COVER-SPECIES		LT	LTSB
BIOMASS-FORBS(KG/HA)	7.2	68	76
BIOMASS-GRASSES(KG/HA)	188	136	240
CLIMAX		SB	SB
BROWSE(KG/HA)		0	0
SOIL PLOT NUMBER			
VEGETATION :			
AGE-DOMINANT (A1)	47 0	47	
-MAIN CANOPY (A2)			
-UNDERSTORY (A3)			
HEIGHT(M)-A1	11 0	16	6
-A2	11.0	11	
-A3			
-B1	5.0	5	5
-B2	2 0	2	2
STRATA COVER(%)-A	30.0	55	05
-B	25.0	15	35
-C	7 5	05	10
-D	97.0	95	99
-EX	15.0	15	15
SURFACE SUBST(%)-ORGANIC	91 5	90	93
-MIN SOIL	0 0	0	0
-DEAD WOOD	3 5	05	02
-OPEN WATER	5 0	05	05

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	L	1

TAMARACK-BLACK SPRUCE/SEDGE/MOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 7452		20 7460	
NUMBER OF SPECIES PER PLOT	33.0		29		37	
SPECIES	%P	MC	%C	SV	%C	SV
A1 LAYER						
1 LARI LAR	100.0	5.5	6	2	5	2
A2 LAYER						
LARI LAR	50.0	25.0	50	2		
B1 LAYER						
LARI LAR	50.0	10.0			20	2
2 PICE MAR	50.0	2.5			5	2
3 BETU PAP	50.0	1.0			2	2
B2 LAYER						
PICE MAR	50.0	2.5	5	2		
4 SALI LAS	50.0	2.5			5	2
C LAYER						
5 CALT PAL	100.0	4.0	3	2	5	2
6 SMIL TRI	100.0	3.5	5	2	2	2
7 OXYC MIC	100.0	2.5	1	2	4	2
8 GALI LAB	100.0	1.0	1	2	1	2
9 STEL LON	100.0	1.0	1	2	1	2
10 PETA SAG	50.0	1.5			3	2
11 MITE NUD	50.0	1.0			2	2
12 ANEM PAR	50.0	0.5			1	2
13 AREN LAT	50.0	0.5	1	2		
14 EQUI ARV,	50.0	0.5	1	2		
15 HABE HYP	50.0	0.5	1	2		
16 PARN PAL	50.0	0.5			1	2
17 POLY AMP	50.0	0.5			1	2
18 POTE PAL	50.0	0.5			1	2
19 PYRO ASA	50.0	0.5	1	2		
20 PYRO SEC	50.0	0.5	1	2		
21 RUBU ACA	50.0	0.5			1	2
22 RUME OCC	50.0	0.5			1	2
23 SCUT GAL	50.0	0.5			1	2
24 VACC VIT	50.0	0.5			1	2
D LAYER						
25 TOME NIT	100.0	21.0	37	2	5	2
26 AULA PAL	100.0	4.5	8	2	1	2
27 PLAG ELL	100.0	2.5	1	2	4	2
28 SPHA FUS	50.0	32.5			65	2
29 HYPN PRA	50.0	9.5	19	2		
30 SPHA WAR	50.0	8.0	16	2		
31 DREP ADU	50.0	4.0			8	2
32 POLY STR	50.0	2.5			5	2
33 CALL GIG	50.0	0.5	1	2		
34 CLAD MIT	50.0	0.5	1	2		
35 HYLO SPL	50.0	0.5	1	2		
36 PELT APH	50.0	0.5	1	2		
EX LAYER						
37 CARE AQU	100.0	2.5	4	2	1	2
38 CALA CAN	100.0	1.0	1	2	1	2

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	L	1

TAMARACK-BLACK SPRUCE/SEDGE/MOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 7452		20 7460	
NUMBER OF SPECIES PER PLOT	33.0		29		37	
SPECIES	%P	MC	%C	SV	%C	SV
39 CARE GYN	50.0	5.0	10	2		
40 CARE DIS	50.0	3.0			6	2
41 CARE PAU	50.0	3.0			6	2
42 CARE PRA	50.0	2.5	5	2		
43 DESC CAE	50.0	0.5			1	2
EL LAYER						
44 LEDU GRO	100.0	1.5	2	2	1	2
LARI LAR	50.0	2.5			5	2
45 BETU PUM	50.0	1.0	2	2		
46 RHAM ALN	50.0	1.0			2	2
SALI LAS	50.0	1.0			2	2
47 ALNU TEN	50.0	0.5			1	2
48 BETU GLA	50.0	0.5	1	2		
49 LONI VIL	50.0	0.5			1	2

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ENVIRONMENT-VEGETATION TABLES, PART 1

RESOURCE INVENTORY

TABLE 14

SYNSYSTEMATIC UNIT : 8DM L 2TAMARACK/BIRCH/SEDGE/MOSS

PLOT NUMBER	MEAN	20 4348	20 7414	20 7434	20 7445
ECOREGION		8DM	8DM	8DM	8DM
ENVIRONMENT :					
ELEVATION(M)	600 0	600	600	600	600
SLOPE GRADIENT(%)	1 0	000	002	001	001
ASPECT		999	195	014	038
SOIL SUBGROUP		HU	HU	HU	HU
SOIL GREATGROUP		M	M	M	M
TEXTURE & PARENT MATERIAL		F O	F O	F O	F O
DRAINAGE		VP	VP	VP	VP
ENV MOISTURE REGIME		W	SW	W	SW
FOREST COVER-HT & DENSITY		S	C1	S	S
FOREST COVER-SPECIES		LT	LT	LT	LT
BIOMASS-FORBS(KG/HA)	14.5	20.4	8.4	15.6	13.6
BIOMASS-GRASSES(KG/HA)	23.2	9.6	57.6	21.2	4.4
CLIMAX		SB	SB	SB	SB
BROWSE(KG/HA)		0	43.9	0	0
SOIL PLOT NUMBER					
VEGETATION :					
AGE-DOMINANT (A1)	63 5	50	77		
-MAIN CANOPY (A2)	43 0		43		
-UNDERSTORY (A3)					
HEIGHT(M)-A1	11 7		12	12	11
-A2	9 0		9		
-A3	8 0		8		
-B1	4 7	4	5	5	
-B2	2 0	2	2	2	2
STRATA COVER(%)-A	2 0		3	02	01
-B	48 5	30	54	70	40
-C	16 0	02	55	03	04
-D	84 3	98	80	60	99
-EX	14 3	05	25	25	02
SURFACE SUBST(%)-ORGANIC	95 8	87	99	98	99
-MIN SOIL	0 0	0	0	0	0
-DEAD WOOD	3 0	10	0	01	01
-OPEN WATER	3		01	1	

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	L	2

TAMARACK/BIRCH/SEDGE/MOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4348		20 7414		20 7434		20 7445	
NUMBER OF SPECIES PER PLOT	29.3		19		40		27		31	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER										
1 LARI LAR	75.0	3.0			10	2	1	2	1	1
2 PICE MAR	75.0	3.0	10	1			1	2	1	1
A2 LAYER										
LARI LAR	50.0	11.3	25	1	20	2				
PICE MAR	50.0	2.5	5	2	5	2				
A3 LAYER										
LARI LAR	50.0	2.5	5	1	5	2				
PICE MAR	50.0	2.5	5	1	5	2				
B1 LAYER										
LARI LAR	50.0	1.8			2	2	5	2		
PICE MAR	50.0	1.0			2	2	2	2		
B2 LAYER										
PICE MAR	75.0	1.3			2	2	2	2	1	2
LARI LAR	50.0	4.0					15	2	1	1
3 SALI PLA	25.0	3.8			15	2				
C LAYER										
4 EQUI FLU	100.0	1.3	2	2	1	2	1	2	1	2
5 SMIL TRI	75.0	2.8	1	2	1	2	9	2		
6 ANDR POL	50.0	2.0	2	1					6	2
7 CALT PAL	50.0	1.0			1	2	3	2		
8 MENY TRI	50.0	0.8	1	2					2	2
9 DROS ROT	50.0	0.5	1	2					1	2
10 GALI LAB	50.0	0.5					1	2	1	2
11 OXYC MIC	50.0	0.5	1	2			1	2		
12 SARR PUR	50.0	0.5	1	2					1	2
13 STEL LON	50.0	0.5					1	2	1	2
14 TOFI GLU	50.0	0.5	1	2					1	2
15 TRIG MAR	50.0	0.5	1	2			1	2		
16 VACC VIT	50.0	0.5			1	2	1	2		
17 RUBU ACA	25.0	1.3			5	2				
18 ARCT UVA	25.0	0.3			1	2				
19 ASTE CIL	25.0	0.3			1	2				
20 EPIL ANG	25.0	0.3			1	2				
21 EQUI ARV	25.0	0.3			1	2				
22 EQUI SCI	25.0	0.3							1	2
23 LINN BOR	25.0	0.3			1	2				
24 PETA SAG	25.0	0.3			1	2				
25 POTE PAL	25.0	0.3							1	2
26 PYRO ASA	25.0	0.3			1	2				
27 SPIR ROM	25.0	0.3	1	2						
28 VACC MYR	25.0	0.3			1	2				
D LAYER										
29 TOME NIT	100.0	46.3	98	2	19	2	19	2	49	2
30 AULA PAL	75.0	11.8			40	2	4	2	3	2
31 DREP VER	50.0	6.0					21	2	3	2
32 MEES TRI	25.0	11.3							45	2
33 SPHA ANG	25.0	10.0					40	2		

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	L	2

TAMARACK/BIRCH/SEDGE/MOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4348		20 7414		20 7434		20 7445	
NUMBER OF SPECIES PER PLOT	29.3		19		40		27		31	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV
34 CALL GIG	25 0	1.8					7	2		
35 SPHA FUS	25 0	1.5			6	2				
36 HYLO SPL	25.0	0.8			3	2				
37 POLY STR	25.0	0.5			2	2				
38 BRYU PSE	25 0	0 3							1	2
39 CAMP STE	25 0	0.3							1	2
40 CLAD MIT	25 0	0 3							1	2
41 CLIM DEN	25 0	0 3			1	2				
42 PELT MAL	25.0	0.3			1	2				
43 SCOR TUR	25 0	0.3							1	2
44 SPHA RUS	25 0	0 3			1	2				
EX LAYER										
45 CARE PRA	50 0	6.0					23	2	1	2
46 CARE LIM	50 0	1.5	5	1					1	2
47 CARE AQU	25 0	3.8			15	2				
48 CALA INE	25 0	2.0			8	2				
49 CARE INT	25.0	0.5							2	2
50 CARE CAP	25 0	0.3			1	2				
51 CARE PAU	25 0	0.3					1	2		
52 ERIO VIR	25 0	0 3							1	2
EL LAYER										
53 BETU PUM	100.0	18.8	5	1	10	2	50	2	10	2
LARI LAR	75.0	3.5			1	2	3	2	10	2
54 SALI PED	75.0	1.3	3	1	1	2			1	2
55 BETU GLA	50 0	6.3					5	2	20	2
56 LEDU GRO	50 0	1.5			1	2	5	2		
57 SALI CAN	50 0	0.5					1	2	1	2
58 LONI VIL	25 0	0 3			1	2				
PICE MAR	25.0	0 3					1	2		
59 RIBE LAC	25 0	0 3			1	2				
60 SALI MYR	25 0	0 3			1	2				

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ENVIRONMENT-VEGETATION TABLES, PART 1

SYNSYSTEMATIC UNIT : 8DM 8 BIRCH/SEDGE/MOSS

RESOURCE INVENTORY

TABLE 15

PLOT NUMBER	MEAN	20 7438	20 7440	20 7442	20 7444	20 7451
ECOREGION		8DM	8DM	8DM	8DM	8DM
ENVIRONMENT :						
ELEVATION(M)	600 0	600	600	600	600	600
SLOPE GRADIENT(%)	0.6	001	000	000	002	000
ASPECT		030	999	999	328	999
SOIL SUBGROUP		TY	TY	TY	TY	ME
SOIL GREATGROUP		H	H	M	M	H
TEXTURE & PARENT MATERIAL		H O	H O	M O	M O	M O
DRAINAGE		VP	VP	VP	P	VP
ENV MOISTURE REGIME		SW	SW	SW	SW	SW
FOREST COVER-HT & DENSITY		S	S	S	S	S
FOREST COVER-SPECIES						
BIOMASS-FORBS(KG/HA)	10.7	10.7	20.8	.8	18.0	3.2
BIOMASS-GRASSES(KG/HA)	18.4	18.5	32.8	22.8	17.6	.6
CLIMAX		SB	SB	SB	SB	SB
BROWSE(KG/HA)				21.3		40.5
SOIL PLOT NUMBER						
VEGETATION :						
AGE-DOMINANT (A1)						
-MAIN CANOPY (A2)						
-UNDERSTORY (A3)						
HEIGHT(M)-A1	12 0		12			
-A2						
-A3						
-B1	4 5	5	5	3	5	
-B2	1.0	1	1	1	1	1
STRATA COVER(%)-A	2.0		02			
-B	54.0	70	70	50	65	15
-C	4.8	02	05	05	10	02
-D	67.0	85	99	50	99	02
-EX	24.4	25	25	25	07	40
SURFACE SUBST(%)-ORGANIC	99 0	99	99	99	99	99
-MIN SOIL	0.0	0	0	0	0	0
-DEAD WOOD	0.4	0	0	0	01	01
-OPEN WATER	0.6	01	01	01	0	0

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	8	1

BIRCH/SEDGE/MOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
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PLOT NUMBER	AVERAGE VALUE		20 7438		20 7440		20 7442		20 7444		20 7451	
NUMBER OF SPECIES PER PLOT	20.8		17		17		25		24		21	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
A1 LAYER												
1 LARI LAR	40.0	1.4			2	2			5	2		
B1 LAYER												
LARI LAR	60.0	4.6	1	2	2	2			20	2		
2 PICE MAR	40.0	1.2					1	1	5	2		
B2 LAYER												
3 BETU GLA	60.0	26.0	60	2	65	2					5	2
LARI LAR	40.0	0.6	1	2	2	2						
C LAYER												
4 MENY TRI	100.0	2.4	2	2	4	2	1	2	2	2	3	2
5 CALT PAL	80.0	1.4	2	2	3	2	1	2	1	2		
6 GALI LAB	80.0	0.8	1	2			1	2	1	2	1	2
7 POTE PAL	60.0	0.6	1	2			1	2	1	2		
8 RUME OCC	60.0	0.6			1	2	1	2	1	2		
9 TRIG MAR	60.0	0.6					1	2	1	2	1	2
10 SMIL TRI	40.0	2.4			1	2			11	2		
11 EQUI FLU	40.0	0.6	1	2							2	2
12 RUBU ACA	40.0	0.4					1	2	1	2		
13 STEL LON	40.0	0.4	1	2			1	2				
14 ANDR POL	20.0	0.8									4	2
15 ASTE HES	20.0	0.2									1	2
16 ASTE JUN	20.0	0.2					1	2				
17 CICU BUL	20.0	0.2	1	2								
18 EPIL ANG	20.0	0.2					1	2				
19 EPIL GLA	20.0	0.2									1	2
20 FRAG VIR	20.0	0.2					1	2				
21 MAIA CAN	20.0	0.2					1	2				
22 MITE NUD	20.0	0.2							1	2		
23 OXYC MIC	20.0	0.2							1	2		
24 PARN PAL	20.0	0.2									1	2
25 SARR PUR	20.0	0.2									1	2
D LAYER												
26 DREP VER	80.0	39.8	84	2	42	2	32	2	41	2		
27 TOME NIT	80.0	25.4	10	2	57	2	4	2	56	2		
28 AULA PAL	80.0	4.4	1	2	1	2	16	2	4	2		
29 BRYU PSE	40.0	0.8					3	2			1	2
30 PELT CAN	40.0	0.4					1	2	1	2		
31 CALL GIG	20.0	0.2			1	2						
32 CALL TRI	20.0	0.2									1	2
33 DREP REV	20.0	0.2									1	1
34 MEES TRI	20.0	0.2									1	2
35 SCOR TUR	20.0	0.2									1	2
36 SPHA WAR	20.0	0.2							1	2		
EX LAYER												
37 CARE PRA	100.0	21.0	23	2	25	2	20	2	1	2	36	2
38 CARE CHO	60.0	0.6			1	2	1	2	1	2		
39 CARE VAG	20.0	0.8					4	2				
40 MUHL GLO	20.0	0.4										

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	BDM	B	1

BIRCH/SEDGE/MOSS

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 7438		20 7440		20 7442		20 7444		20 7451	
NUMBER OF SPECIES PER PLOT	20.8		17		17		25		24		21	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV	%C	SV
41 CARE AQU	20.0	0.2									1	2
42 CARE LIM	20.0	0.2			1	2						
EL LAYER												
BETU GLA	80.0	12.0	5	2	5	2	45	2			5	2
43 SALI PED	80.0	2.8	5	2			5	2	3	2	1	2
44 SALI CAN	60.0	1.4					1	2	1	2	5	2
45 BETU PUM	40.0	10.0					5	2	45	2		
LARI LAR	40.0	0.6			2	2			1	2		
46 KALM POL	20.0	0.2	1	2								

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ENVIRONMENT-VEGETATION TABLES, PART 1 — RESOURCE INVENTORY — TABLE 16

SYNSYSTEMATIC UNIT : 8DM 8 2WILLOW/SEDGE

PLOT NUMBER	MEAN	20 4343	20 7401	20 7441	20 7436
ECOREGION		8DM	8DM	8DM	8DM
ENVIRONMENT :					
ELEVATION(M)	600 0	600	600	600	600
SLOPE GRADIENT(%)	0 3	000	001	000	000
ASPECT		999	360	999	999
SOIL SUBGROUP		ME	ME	TY	TY
SOIL GREATGROUP		H	H	M	H
TEXTURE & PARENT MATERIAL		M 0	M 0	M 0	H 0
DRAINAGE		VP	VP	VP	VP
ENV MOISTURE REGIME		W	W	W	W
FOREST COVER-HT & DENSITY		S	S	S	S
FOREST COVER-SPECIES					
BIOMASS-FORBS(KG/HA)	46	20	8	16	140
CLIMAX		SB	SB	SB	SB
BROWSE(KG/HA)		2170	1008	1472	504
BIOMASS-GRASSES(KG/HA)	1743	760	3372	1432	1408
SOIL PLOT NUMBER					
VEGETATION :					
AGE-DOMINANT (A1)					
-MAIN CANOPY (A2)					
-UNDERSTORY (A3)					
HEIGHT(M)-A1					
-A2					
-A3					
-B1	35 0		4	3	
-B2	17 5	2	1	2	2
STRATA COVER(%)-A	0 0				
-B	30 0	35	25	30	30
-C	2 5	01	01	03	05
-D	18 3	05		15	35
-EX	73 8	75	60	95	65
SURFACE SUBST(%)-ORGANIC	85 3	74	74	98	95
-MIN SOIL	0 0	0	0	0	0
-DEAD WOOD	0 5	01	01	0	0
-OPEN WATER	14 3	25	25	[illegible]	[illegible]

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	8	2

WILLOW/SEDGE

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

RESOURCE INVENTORY
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PLOT NUMBER	AVERAGE VALUE		20 4343		20 7401		20 7441		20 7436	
NUMBER OF SPECIES PER PLOT	15.8		8		15		15		25	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV
B1 LAYER										
1 SALI CAN	25.0	3.8					15	2		
2 SALI PLA	25.0	3.8			15	2				
B2 LAYER										
SALI PLA	50.0	7.5			5	2			25	2
3 SALI PED	25.0	8.8	35	2						
SALI CAN	25.0	2.5					10	2		
4 SALI BEB	25.0	1.3			5	2				
C LAYER										
5 CALT PAL	75.0	2.8	1	2			2	2	8	2
6 GALI LAB	50.0	1.0					2	2	2	2
7 POTE PAL	50.0	1.0	1	2					3	2
8 POLY LAP	50.0	0.5	1	2	1	2				
9 RUME OCC	25.0	0.5							2	2
10 CHRY IOW	25.0	0.3							1	2
11 CICU BUL	25.0	0.3							1	2
12 EPIL ANG	25.0	0.3							1	2
13 EPIL GLA	25.0	0.3			1	2				
14 FRAG VIR	25.0	0.3			1	2				
15 GEUM ALL	25.0	0.3							1	2
16 GEUM MAC	25.0	0.3			1	2				
17 MAIA CAN	25.0	0.3					1	2		
18 MENT ARV	25.0	0.3			1	2				
19 POTE RIV	25.0	0.3							1	2
20 RORR ISL	25.0	0.3	1	2						
21 RUBU ACA	25.0	0.3							1	2
22 SCUT GAL	25.0	0.3			1	2				
23 SMIL TRI	25.0	0.3					1	2		
24 STEL LON	25.0	0.3							1	2
25 TRIG MAR	25.0	0.3			1	2				
26 VICI AME	25.0	0.3			1	2				
D LAYER										
27 AULA PAL	75.0	3.8	5	2			3	2	7	2
28 DREP VER	25.0	6.3							25	2
29 PLAG ELL	25.0	2.5					10	2		
30 BRYU PSE	25.0	1.8							7	2
31 HYPN PRA	25.0	1.3					5	2		
32 RHIZ PSE	25.0	0.3							1	2
33 TOME NIT	25.0	0.3							1	2
EX LAYER										
34 CARE PRA	50.0	21.3	75	2			10	2		
35 CARE AQU	50.0	19.8					40	2	39	2
36 CARE ATH	25.0	12.5			50	2				
37 CARE ROS	25.0	11.3					45	2		
38 CARE DIS	25.0	3.8							15	2
39 CALA CAN	25.0	2.5			10	2				
40 AGRO SCA	25.0	0.3							1	2
41 DESC CAE	25.0	0.3							1	2

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LEVEL	ZONE	ASSC	TYPE
ECOSYM UNIT	8DM	B	2

WILLOW/SEDGE

PRESENCE (%P), MEAN COVER (MC), PERCENT COVER (%C), SOCIABILITY (S), VIGOR (V)

PLOT NUMBER	AVERAGE VALUE		20 4343		20 7401		20 7441		20 7436	
NUMBER OF SPECIES PER PLOT	15.8		8		15		15		25	
SPECIES	%P	MC	%C	SV	%C	SV	%C	SV	%C	SV
42 ERIO CHA	25.0	0.3							1	2
EL LAYER										
43 BETU PUM	50.0	1.5					5	2	1	2
44 RIBE LAC	50.0	0.5			1	2			1	2
SALI PED	25.0	5.0	20	2						
45 BETU GLA	25.0	1.3					5	2		
46 RHAM ALN	25.0	1.3							5	2
SALI CAN	25.0	1.3					5	2		
47 LONI VIL	25.0	0.3			1	2				

ECOSYSTEMATIC UNITS	P 8DM 1		P 8DM 2		P 8DM 3a		P 8DM 3b		A 8DM 1a		A 8DM 1b		A 8DM 2		A 8DM 3		Sw 8DM 1		Sw 8DM 2		Bp 8DM 1	
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE																					
ABIE BAL																			II	0.3		
ACHI MIL			I	0.1	III	0.4	I	0.2	IV	1.4	IV	0.6	I	0.1	I	0.2	I	0.1			III	0.5
ACHI SIB																					III	0.5
ACTA RUB											II	0.3	III	0.5	III	0.5	III	0.4	II	0.3	III	0.5
AGRO SCA	II	0.5	II	0.3	IV	15.3	IV	22.0	IV	6.4	III	2.5	II	4.4	I	0.3	III	2.9			III	0.5
ALNU CRI																						
ALNU TEN															I	0.1					III	2.5
AMBL SER			IV	0.7	II	0.3			II	0.9	II	0.3	II	2.0	II	2.1	II	0.6				
AMEL ALN																						
ANDR POL																						
ANEM PAR			III	0.9	I	0.2																
ANEM PAT																						
ANTE NEG	II	0.3	I	0.1	I	0.2	I	0.2			I	0.1										
ARAL NUD					I	0.1	III	0.6	III	2.7	III	4.1	V	6.3	IV	9.7	V	13.7	II	0.3		
ARCT UVA	IV	4.3	V	9.6	V	6.0	I	0.2	IV	0.7	II	0.6	I	0.1								
AREN LAT									I	0.1			I	0.1	I	0.1						
ASTE CIL	II	0.3	I	0.1	II	0.3	I	0.2	V	2.7	V	1.5	V	1.8	V	2.9	V	1.6	III	0.5	V	1.0
ASTE CON					I	0.1			II	0.3	II	0.6	III	1.5	III	1.2	I	0.1				
ASTE HES																						
ASTE JUN																						
ASTR FRI															I	0.1						
ASTR OCC					I	0.1			I	0.1												
AULA PAL									I	0.1	I	0.3									III	0.5
BETU GLA																						
BETU PAP	II	0.3			I	0.4	I	1.0			II	0.9	II	0.9	I	0.1	III	2.3	II	0.5		
BETU PUM					I	0.1					I	0.1										
BRAC SAL					I	0.2	I	0.8	III	0.4	IV	0.9	III	0.9	III	0.8	IV	3.7				
BROM PUM																					III	0.5
BRYU PSE																					III	0.5
CALA CAN									I	0.1												
CALA INE			I	0.1	III	0.8	IV	1.0	III	0.6	III	0.5	IV	1.9	V	1.8	III	1.0			V	14.0
CALL GIG																						
CALL TRI																						
CALT PAL																						
CAMP ROT	II	0.3	V	1.0	III	0.5	I	0.2	IV	0.7	I	0.1	I	0.1			I	0.1	II	0.3	III	0.5
CAMP STE																						
CARE AQU																						
CARE ATH																					III	2.5
CARE BRU																					III	0.5
CARE CAP																						
CARE CHO																						
CARE CON									I	0.1												
CARE DEW																						
CARE DIS																					III	1.0
CARE GYN																						
CARE INT																						
CARE LIM																						
CARE PAU																						
CARE PEC									II	0.3	I	0.1	I	0.1								

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SUMMARY VEGETATION TABLE — RESOURCE INVENTORY — EDMONTON, ALBERTA

ECOSYSTEMATIC UNITS	8DM P 1	8DM P 2	8DM P 3a	8DM P 3b	8DM A 1a	8DM A 1b	8DM A 2	8DM A 3	8DM Sw 1	8DM Sw 2	8DM Bp 1
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE										
CARE PRA				I 0.2		I 0.1	I 0.1				
CARE RIC	II 0.3	III 0.4	III 0.4		III 0.4						
CARE ROS											
CARE TEN											
CARE VAG											III 0.5
CHRY IOW									I 0.1	III 1.0	
CICU BUL											
CICU DOU											
CIRS ARV											III 0.5
CLAD CEN					I 0.1						
CLAD COC		I 0.1			I 0.1						
CLAD CON											
CLAD COR				I 0.2							
CLAD CRI	II 0.5		I 0.1		I 0.1					II 0.3	
CLAD DEF	II 0.3	I 0.1	I 0.1								
CLAD FIM											
CLAD FUR	II 0.5	III 0.7	III 0.5	I 0.2				I 0.1	I 0.1		
CLAD GRA	III 0.8	IV 1.4		II 0.4	II 0.3						
CLAD MIT	V 13.0	V 27.7	V 3.1	II 0.4	I 0.1				I 0.1	II 0.3	
CLAD MUL										II 0.3	
CLAD PYX											
CLAD UNC	II 0.3	II 0.3									
CLAD VER					I 0.1						
CLIM DEN						I 0.1					III 2.5
COMA PAL		III 0.4			I 0.1						
CORA TRI						I 0.1					
CORN CAN	V 2.0	II 0.3	IV 3.0	V 9.8	V 4.1	V 5.1	V 7.0	IV 1.9	V 4.9	V 2.3	
CORN STO					II 0.3	II 0.3	II 0.4	I 0.2	III 1.1	II 0.3	V 10.0
CORY COR					I 0.1		I 0.4	III 2.6		II 0.3	
DESC CAE											
DICR FRA											
DICR POL	III 0.8	II 0.3	III 0.4	III 1.4					I 0.1	II 1.0	
DICR UND										II 0.8	
DISP TRA											
DREP ADU						I 0.1	II 0.3	II 0.6	II 0.3		
DREP REV											III 0.5
DREP UNC											
DREP VER											
DROS ROT											
ELYM INN	III 1.5	III 1.3	IV 2.3	IV 0.8	IV 2.3	V 3.0	IV 3.0	IV 1.2	II 0.4	II 0.3	
EPIL ANG	II 0.3	I 0.1	V 2.5	IV 1.2	IV 1.7	V 7.3	V 8.6	V 5.9	IV 6.4	III 0.5	
EPIL GLA			I 0.1	I 0.2	III 0.9	III 0.5	II 0.3	I 0.1	IV 0.7	III 0.5	V 3.5
EQUI ARV					I 0.1						
EQUI FLU			I 0.1		I 0.1	I 0.1				II 0.3	
EQUI SCI								II 0.4	I 0.1		
EQUI SYL											
ERIG GLA		I 0.6									
ERIG PHI											
ERIO CHA											III 0.5

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SUMMARY VEGETATION TABLE

RESOURCE INVENTORY EDMONTON, ALBERTA

ECOSYSTEMATIC UNITS	8DM P 1	8DM P 2	8DM P 3a	8DM P 3b	8DM A 1a	8DM A 1b	8DM A 2	8DM A 3	8DM Sw 1	8DM Sw 2	8DM Bp 1
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE										
ERIO VIR											
EURH PUL	II 0.3							I 0.1	I 0.1		III 2.5
FEST SAX			I 0.1								
FRAG VIR	II 0.3	I 0.1	III 0.8	III 0.8	V 1.9	V 3.5	V 1.1	V 1.2	V 1.6	II 0.3	V 2.0
GALI BOR		II 0.3	I 0.2	I 0.2	IV 0.7	V 1.1	IV 1.0	V 1.3	IV 0.7	II 0.3	III 0.5
GALI LAB						II 0.3		I 0.2	III 0.4	III 0.5	
GALI TRI					I 0.1	I 0.1			I 0.1		
GENT AMA										III 0.8	
GEOC LIV			I 0.2	I 0.2	I 0.1	I 0.1					V 1.0
GEUM ALL										IV 0.8	
GEUM MAC											
GOOD REP											
HABE HYP											
HALE DEF					I 0.1				I 0.1		
HAPL MIC					I 0.1						
HEDY ALP			I 0.3		I 0.1	II 0.3	I 0.1				III 0.5
HERA LAN								I 0.1			III 0.5
HIER CAN	II 0.3	III 0.6	II 0.3	I 0.2	I 0.1	I 0.1	I 0.1				
HIER ODO											
HYLO SPL	III 2.3	I 0.1	I 0.2	V 3.0		I 0.4		I 0.1	III 1.6	V 47.5	
HYPN PRA									I 0.1		
HYPO PHY											
JUNC BAL											
KALM POL											
LARI LAR			I 0.1			I 0.3					
LATH OCH			I 0.3		III 2.1	V 3.3	IV 3.0	V 1.6	III 0.6		III 0.5
LEDU GRO	V 9.0	I 0.1	IV 9.4	II 0.4	II 0.3	II 0.4					
LESC RAD									I 0.1		
LILI PHI					I 0.1	II 0.3					
LINN BOR	V 3.0	III 0.6	V 5.4	V 14.4	V 9.6	IV 2.5	V 3.3	III 2.3	V 3.3	V 4.3	
LONI DIO			I 0.1	II 0.4	I 0.1	IV 1.3	IV 0.8	III 1.5	III 0.6		III 1.5
LONI INV	II 0.3		II 0.4	I 0.7	II 0.8	II 2.5	II 0.9	IV 2.6	II 0.3	III 0.5	
LONI VIL	II 0.3		I 0.1		II 0.4						
LYCO ANN			I 0.1	II 0.4	I 0.1		II 1.0		I 1.9		
LYCO COM			I 0.1								
LYCO OBS					I 0.1		I 0.1				
MAIA CAN	III 0.5	V 2.1	V 1.9	V 1.8	V 3.4	V 2.4	V 1.5	V 1.7	V 1.3	III 0.5	III 0.5
MEES TRI											
MENT ARV											V 1.0
MENY TRI											
MERT PAN					II 0.3	III 3.3	IV 2.4	V 3.3	V 4.7		
MITE NUD			I 0.1	III 0.6	I 0.9	III 2.0	IV 1.1	I 0.1	IV 2.9	IV 2.3	
MUHL GLO											

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ECOSYSTEMATIC UNITS	BDM P 1	BDM P 2	BDM P 3a	BDM P 3b	BDM A 1a	BDM A 1b	BDM A 2	BDM A 3	BDM Sw 1	BDM Sw 2	BDM Bp 1
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE										
ONCO WAH											
ORCH ROT									I 0.1		
ORYZ ASP		III 0.6	II 0.3	I 0.2	II 0.3	II 0.4	II 0.3	I 0.2			
ORYZ PUN	III 0.5	III 1.1	III 0.7	I 0.2	III 0.4	II 0.3					
OSMO DEP									I 0.1		
OXYC MIC											
PARN PAL											
PELT APH	II 2.5		I 0.5		I 0.9				III 0.4		III 0.5
PELT CAN	II 0.3	I 0.1				II 0.3		I 0.2	III 0.4		
PELT MAL	II 0.3	III 0.6	I 0.2		I 0.1					III 0.5	
PELT POL		I 0.1									
PENS ALB	II 0.3	II 0.3	I 0.2								
PETA PAL	II 0.3		I 0.2	I 0.8	III 1.6	V 2.9	V 1.5	IV 1.2	V 2.1	III 0.5	III 0.5
PETA SAG											III 0.5
PHAC FRA		I 0.1									
PICE GLA		III 0.9	III 1.3	III 1.6	IV 5.1	II 2.4	IV 3.8	I 1.0	V 22.1	V 51.3	
PICE MAR	V 24.3		I 0.4	II 4.0							
PINU BAN	V 26.3	V 23.9	V 32.1	V 40.0			I 0.1				
PLAG CUS								II 0.3	II 1.3		
PLAG DRU									I 1.1		
PLAG ELL											
PLEU SCH	IV 22.8	I 1.4	V 5.3	V 23.8	III 0.4	II 0.3	IV 1.0	II 0.6	IV 1.9	V 24.0	III 0.5
POA PAL											III 1.0
POHL CRU											V 1.0
POLY ANP								I 0.1			
POLY JUN	IV 1.0	IV 2.1	IV 0.7	I 0.2	III 1.7						III 3.5
POLY LAP									I 0.1	II 0.3	
POLY PAU			I 0.1	I 0.2	I 0.1	I 0.1					
POLY STR											
POPU BAL											
POPU TRE	III 0.8	II 0.9	V 4.6	III 1.4	I 4.3	IV 3.3	III 4.4	II 2.2	III 7.9	III 1.8	V 9.0
POTE PAL					V 42.9	V 43.1	V 3.3	V 65.5	IV 8.6	II 1.3	III 1.0
POTE RIV											III 0.5
POTE TRI	III 0.5	III 0.6	III 0.6		I 0.1						III 0.5
PRUN PEN			I 0.1		II 0.7			I 1.5			
PRUN VIR			I 0.1		II 0.4	I 0.3	I 0.3				
PTIL CRI	IV 1.5	I 0.1	III 0.8	IV 5.2		II 0.5			III 1.3	IV 14.8	
PTIL PUL	II 0.3							I 0.1			
PYLA POL											
PYRO ASA			II 0.3	II 0.4	IV 2.4	V 2.0	V 1.9	V 1.2	III 0.9	II 0.3	
PYRO SEC				II 0.4	III 0.7	III 0.5	I 0.4	I 0.1	II 0.3	III 0.5	
RHAM ALN											
RHIZ PSE							I 0.1				
RIBE AME											
RIBE GLA											V 3.0
RIBE HIR					I 0.1	I 0.3	I 0.1	I 0.1	I 0.1		
RIBE LAC											III 0.5
RIBE OXY						II 0.3	I 0.3	II 0.3	I 0.1	II 0.3	
RIBE TRI						II 0.3	I 0.1	I 0.2	III 0.6		

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ECOSYSTEMATIC UNITS	BDM P 1	BDM P 2	BDM P 3a	BDM P 3b	BDM A 1a	BDM A 1b	BDM A 2	BDM A 3	BDM Sw 1	BDM Sw 2	BDM Bp 1
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE										
RORR ISL											
ROSA ACI	IV 0.8	IV 1.1	V 1.9	V 1.2	V 3.4	V 3.5	IV 4.3	V 3.1	V 3.0	III 0.5	III 1.0
RUBU ACA											
RUBU CHA											
RUBU PUB			II 0.3	III 0.6	IV 1.6	V 5.4	V 2.8	V 3.6	IV 2.1	IV 1.0	V 2.5
RUBU STR			III 0.4	IV 0.8	I 0.1	II 0.4	II 0.6	IV 1.0	III 0.4		
RUME OCC											
SALI BEB		III 0.6	II 0.4	I 0.4	III 1.9	IV 7.3	II 3.8	III 5.4	III 1.4		III 17.5
SALI CAN											
SALI LAS											
SALI MYR					I 0.1						
SALI PED											
SALI PLA											III 20.0
SANI MAR						I 0.1					
SARR PUR											
SCHI PUR			I 0.1		II 0.3	I 0.1			I 0.1		
SCOR TUR											
SCUT GAL											III 0.5
SHEP CAN	III 0.5	III 1.0	I 0.1		I 0.1	II 0.4	I 0.1				
SMIL STE						I 0.1					V 1.0
SMIL TRI											
SOLI DEC		II 0.3	I 0.1		I 0.1						
SOLI GIG											III 3.0
SPHA ANG											
SPHA CUS											
SPHA FUS											
SPHA NEM											
SPHA RUS											
SPHA WAR											
SPIR ROM											
STEL LON											
STEL MED					I 0.1						
SYMP ALB					II 0.9	IV 1.0	II 0.5	V 2.3	IV 0.9	II 0.3	III 2.5
TARA OFF					III 0.6	II 0.3		I 0.2	I 0.1		V 3.0
THAL VEN					III 0.4	II 2.1	II 0.6				V 3.5
TOFI GLU											
TOME NIT					I 0.1						
TRIE BOR	II 0.5	I 0.1	II 0.4	IV 0.8	III 1.9	V 1.0	V 1.0	II 0.4	III 0.4	II 0.3	
TRIG MAR											
TROL ALB											V 3.5
VACC CAE			I 0.1		I 0.1	III 0.5	I 0.1				
VACC MYR	V 3.5	V 7.1	V 12.5	V 2.8	IV 7.4	II 1.5	II 3.0		II 0.3	II 0.5	
VACC VIT	V 6.3	V 14.9	V 16.7	IV 2.2	III 0.6	III 0.8	II 0.3		I 0.1	II 0.5	
VALE SEP						I 0.1					
VIBU EDU	II 0.3		I 0.1	I 0.2	IV 3.1	IV 8.5	V 8.6	V 4.0	V 4.1	IV 0.8	
VICI AME					III 0.4	IV 0.8	III 0.5	IV 0.7	I 0.3		V 2.0
VIOL ADU		III 0.4	III 0.6	II 0.4	IV 0.7	II 0.3	I 0.1	II 0.3			
VIOL RUG				I 0.2	III 0.4	I 0.1	V 1.0	III 2.5	III 0.9	II 0.3	

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SUMMARY VEGETATION TABLE

RESOURCE INVENTORY EDMONTON, ALBERTA

ECOSYSTEMATIC UNITS	P	8DM 1 P	8DM 2 P	8DM 3a P	8DM 3b A	8DM 1a A	8DM 1b A	8DM 2 A	8DM 3 Sw	8DM 1 Sw	8DM 2 Bp	8DM 1
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE											
ZIZI APT												

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SUMMARY VEGETATION TABLE

RESOURCE INVENTORY EDMONTON, ALBERTA

ECOSYSTEMATIC UNITS	BDM Sb 1	BDM 1 1	BDM 1 2	BDM B 1	BDM B 2
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE				
ABIE BAL					
ACHI MIL	II 0.2				
ACHI SIB					
ACTA RUB					
AGRO SCA					II 0.3
ALNU CRI					
ALNU TEN		III 0.5			
AMBL SER					
AMEL ALN					
ANDR POL			III 2.0	I 0.8	
ANEM PAR		III 0.5			
ANEM PAT					
ANTE NEG					
ARAL NUD					
ARCT UVA	I 0.1		II 0.3		
AREN LAT		III 0.5			
ASTE CIL	II 0.2		II 0.3		
ASTE CON	I 0.1				
ASTE HES				I 0.2	
ASTE JUN				I 0.2	
ASTR FRI					
ASTR OCC					
AULA PAL	V 12.8	V 4.5	IV 11.8	IV 4.4	IV 3.8
BETU GLA	II 0.8	III 0.5	III 6.3	IV 12.0	II 1.3
BETU PAP		III 1.0			
BETU PUM	II 0.8	III 1.0	V 18.8	II 10.0	III 1.5
BRAC SAL					
BROM PUM					
BRYU PSE	I 0.1		II 0.3	II 0.8	II 1.8
CALA CAN		V 1.0			II 2.5
CALA INE	I 0.1		II 2.0		
CALL GIG	I 1.0	III 0.5	II 1.8	I 0.2	
CALL TRI				I 0.2	
CALT PAL	I 0.2	V 4.0	III 1.0	IV 1.4	IV 2.8
CAMP ROT	I 0.2				
CAMP STE			II 0.3		
CARE AQU	II 0.9	V 2.5	II 3.8	I 0.2	III 19.8
CARE ATH					II 12.5
CARE BRU					
CARE CAP	I 0.1		II 0.3		
CARE CHO	I 0.1			III 0.6	
CARE CON	I 0.1				
CARE DEW					
CARE DIS		III 3.0			II 3.8
CARE GYN	II 0.3	III 5.0			
CARE INT			II 0.8		
CARE LIM	I 0.1		III 1.6	I 0.2	
CARE PAU		III 3.0	II 0.3		
CARE PEC					

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ECOSYSTEMATIC UNITS	Sb 1	L 1	L 2	B 1	B 2
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE				
CARE PRA	I 0 3	III 2 5	III 6 0	V 21 0	III 21 3
CARE RIC					
CARE ROS	I 0 1				II 11 3
CARE TEN					
CARE VAG	I 0 1			I 0 8	
CHRY IDW	I 0 1				II 0 3
CICU BUL				I 0 2	II 0 3
CICU DOU					
CIRS ARV					
CLAD CEN	I 0 1				
CLAD COC					
CLAD CON	I 0 1				
CLAD COR	II 0 2				
CLAD CRI					
CLAD DEF	II 0 2				
CLAD FIM	I 0 1				
CLAD FUR	II 0 4				•
CLAD GRA	II 0 5				
CLAD MIT	V 23 2	III 0 5	II 0 3		
CLAD MUL	I 0 1				
CLAD PYX	I 0 1				
CLAD UNC	I 0 1				
CLAD VER					
CLIM DEN			II 0 3		
COMA PAL					
CORA TRI	I 0 1				
CORN CAN	I 0 2				
CORN STO					
CORY COR					
DESC CAE		III 0 5	•		II 0 3
DICR FRA					
DICR POL	II 0 2				
DICR UND	IV 2 2				
DISP TRA					
DREP ADU		III 4 0			
DREP REV				I 0 2	
DREP UNC	I 0 1				
DREP VER	I 0 3		III 6 0	IV 39 8	II 6 3
DROS ROT	I 0 1		III 0 5		
ELYM INN	I 0 2				
EPIL ANG	II 0 2		II 0 3	I 0 2	II 0 3
EPIL GLA				I 0 2	II 0 3
EQUI ARV	II 1 1	III 0 5	II 0 3		
EQUI FLU			V 1 3	II 0 6	
EQUI SCI			II 0 3		
EQUI SYL					
ERIG GLA					
ERIG PHI					
ERIO CHA					0 1

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SUMMARY VEGETATION TABLE

ECOSYSTEMATIC UNITS	BDM Sb 1	BDM L 1	BDM L 2	BDM B 1	BDM B 2
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE				
ERIO VIR			II 0.3		
EURH PUL					
FEST SAX					
FRAG VIR	II 0.3			I 0.2	II 0.3
GALI BOR	II 0.2				
GALI LAB	I 0.1	V 1.0	III 0.5	IV 0.8	III 1.0
GALI TRI					
GENT AMA					
GEOC LIV	II 0.3				
GEUM ALL					II 0.3
GEUM MAC					II 0.3
GOOD REP					
HABE HYP	I 0.1	III 0.5			
HALE DEF					
HAPL MIC					
HEDY ALP					
HERA LAN					
HIER CAN	I 0.1				
HIER ODO					
HYLO SPL	III 3.9	III 0.5	II 0.8		
HYPN PRA		III 9.5			II 1.3
HYPO PHY					
JUNC BAL	I 0.4				
KALM POL				I 0.2	
LARI LAR	III 1.7	V 5.5	IV 3.5	III 4.6	
LATH OCH	I 0.1				
LEDU GRO	V 31.8	V 1.5	III 1.5		
LESC RAD					
LILI PHI					
LINN BOR	III 0.9		II 0.3		
LONI DIO					
LONI INV	I 0.1				
LONI VIL	III 0.7	III 0.5	II 0.3		II 0.3
LYCO ANN					
LYCO COM					
LYCO OBS					
MAIA CAN	I 0.1			I 0.2	II 0.3
MEES TRI			II 11.3	I 0.2	
MENT ARV					II 0.3
MENY TRI	I 0.1		III 0.8	V 2.4	
MERT PAN					
MITE NUD	III 0.5	III 1.0		I 0.2	
MUHL GLO				I 0.4	

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SUMMARY VEGETATION TABLE

RESOURCE INVENTORY EDMONTON, ALBERTA

ECOSYSTEMATIC UNITS	Sb BDM 1	L BDM 1	L BDM 2	B BDM 1	B BDM 2
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE *				
DNCO WAH					
DRCH ROT	I 0 1				
DRYZ ASP	I 0 1				
DRYZ PUN					
DSMO DEP					
DXYC MIC	IV 0 8	V 2 5	III 0 5	I 0 2	
PARN PAL	I 0 1	III 0 5		I 0 2	
PELT APH	IV 0 8	III 0 5			
PELT CAN	II 0 2			II 0 4	
PELT MAL	I 0 2		II 0 3		
PELT POL	I 0 1				
PENS ALB	I 0 1				
PETA PAL	II 0 4				
PETA SAG	I 0 2	III 1 5	II 0 3		
PHAC FRA					
PICE GLA					
PICE MAR	V 5 2	III 2 5	IV 3 0	II 1 2	
PINU BAN					
PLAG CUS	I 0 4				
PLAG DRU					
PLAG ELL		V 2 5			II 2 5
PLEU SCH	V 6 5				
POA PAL					
POHL CRU					
POLY AMP		III 0 5			
POLY JUN	II 0 5				
POLY LAP					
POLY PAU					III 0 5
POLY STR	III 0 6	III 2 5	II 0.5		
POPU BAL					
POPU TRE					
POTE PAL	I 0 1	III 0 5	II 0.3	III 0.6	III 1 0
POTE RIV					II 0 3
POTE TRI	I 0 1				
PRUN PEN					
PRUN VIR					
PTIL CRI	II 0 4				
PTIL PUL					
PYLA POL					
PYRO ASA	II 0 2	III 0 5	II 0 3		
PYRO SEC	I 0 1	III 0 5			
RHAM ALN	I 0 2	III 1 0			II 1 3
RHIZ PSE					II 0 3
RIBE AME					
RIBE GLA	I 0 1				
RIBE HIR					
RIBE LAC	I 0 1		II 0 3		III 0 5
RIBE OXY					
RIBE TRI					

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SUMMARY VEGETATION TABLE

ECOSYSTEMATIC UNITS	8DM Sb 1	8DM L 1	8DM L 2	8DM B 1	8DM B 2
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE				
RORR ISL					II 0.3
ROSA ACI	III 0.6				
RUBU ACA	III 0.5	III 0.5	II 1.3	II 0.4	II 0.3
RUBU CHA	I 0.2				
RUBU PUB					
RUBU STR					
RUME OCC		III 0.5		III 0.6	II 0.5
SALI BEB	I 0.2				II 1.3
SALI CAN			III 0.5	III 1.4	II 3.8
SALI LAS		III 2.5			
SALI MYR	IV 2.5		II 0.3		
SALI PED	II 0.5		IV 1.3	IV 2.8	II 8.8
SALI PLA	I 0.2		II 3.8		III 7.5
SANI MAR	I 0.1				
SARR PUR			III 0.5	I 0.2	
SCHI PUR					
SCOR TUR			II 0.3	I 0.2	
SCUT GAL		III 0.5			II 0.3
SHEP CAN	I 0.1				
SMIL STE					
SMIL TRI	IV 1.4	V 3.5	IV 2.8	II 2.4	II 0.3
SOLI DEC					
SOLI GIG					
SPHA ANG	I 0.2		II 10.0		
SPHA CUS	I 5.9				
SPHA FUS	III 15.2	III 32.5	II 1.5		
SPHA NEM	I 0.1				
SPHA RUS			II 0.3		
SPHA WAR	I 3.9	III 8.0		I 0.2	
SPIR ROM	I 0.2		II 0.3		
STEL LON	II 0.2	V 1.0	III 0.5	II 0.4	II 0.3
STEL MED					
SYMP ALB					
TARA OFF	I 0.1				
THAL VEN					
TOFI GLU			III 0.5		
TOME NIT	IV 9.5	V 21.0	V 46.3	IV 25.4	II 0.3
TRIE BOR	I 0.2				
TRIG MAR			III 0.5	III 0.6	II 0.3
TROL ALB					
VACC CAE	I 0.1				
VACC MYR	II 0.7		II 0.3		
VACC VIT	V 4.8	III 0.5	III 0.6		
VALE SEP					
VIBU EDU					
VICI AME					II 0.3
VIOL ADU	I 0.2				
VIOL RUG					

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SUMMARY VEGETATION TABLE

RESOURCE INVENTORY EDMONTON, ALBERTA

ECOSYSTEMATIC UNITS	Sb 8DM 1 L	8DM 1 L	8DM 2 B	8DM 1 B	8DM 2
SPECIES	PRESENCE CLASS AND MEAN SPECIES SIGNIFICANCE				
ZIZI APT	I 0 I				

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POOR

QUALITY

ORIGINAL